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THE
GLASGOW MEDICAL JOURNAL.

EDITED BY

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ALEXANDER NAPIER, M.D.,

FOR THE

Glasgow and West of Scotland Medical Association.

JULY TO DECEMBER 1883.

VOL. XX.

GLASGOW:
ALEX. MACDOUGALL, 66 MITCHELL STREET.
LONDON: H. K. LEWIS, 136 GOWER STREET.

1883.

8099



THE
GLASGOW MEDICAL JOURNAL.

No. I. JULY, 1883.

ORIGINAL ARTICLES.

ON A PROLONGED CASE OF ENTERIC FEVER; WITH
REMARKS ESPECIALLY WITH REFERENCE TO
ABERRANT COURSE OF TEMPERATURE.*

By ROBERT PARK, M.D., &c., &c.,

Medical Officer for Third and Fourth Districts of City Parish, Glasgow; and
Physician for Diseases of Women and Children, at Anderson's
College Dispensary, Glasgow.

J. C. M., æt. 43 years, single, first consulted me in reference to the illness of which I am about to give details on the 19th August, 1882. He is a man of medium height (5 ft. 9 in.), and was, at the date mentioned, about 11½ stones weight.

Previous History.—This may be epitomised shortly thus:—After a prolonged course of medicinal treatment, and a residence at Harrogate, and treatment there, he was pronounced well early in 1878 by his physician, Dr. Moore, of the enthetic malady from which he had been suffering. Not satisfied with this, however, he desired to be further under observation and treatment; and although there was really nothing wrong with him beyond some degree of impotence, and the mental impression that his blood was not quite pure, I placed him on a course of iodide of potassium and iron, which was continued for six months.

After this he was not very regular in his *modus vivendi*, and was only recalled to habits of temperance by an attack of delirium tremens, for which I attended him, and from which

* The substance of this paper was read before the Glasgow Southern Medical Society, at its meeting, 8th March.

he recovered completely; and (what is of great importance to note here) without inducing the very smallest sign or symptom of his previous malady.

At the Christmas of 1880 he sustained a fracture of his left tibia which united well. He was about within two months. He bore the confinement well, and afterwards showed no sign of anything in the nature of a recurrence, unless a certain inability to get a proper grip of the ground, as he expressed it, with the leg which had been the subject of fracture could be construed into such. With the view of setting this question at rest, and of relieving myself of responsibility, I sent him to consult Dr. Finlayson. Dr. F. had the patient stripped and made a most careful examination of him, and failed to discover any sign or symptom to justify active treatment, or the belief that there was any new central lesion. The degree of impotence complained of, together with the symptom above referred to, were held to be inevitable sequels of the paraplegia from which he had suffered prior to going to Harrogate.

Early in March, 1882, he left Glasgow in perfect health and capital form to fill an appointment at Glengarnock Mills, Kilbirnie, Ayrshire. His duties involved his being on his feet almost without intermission from 6 A.M. till 6 P.M.—somewhat severe labour, as it also involved constant mental tension, for a man who had been living on his means for four years previously, and practically doing nought.

The only lodging which Glengarnock afforded him was over a grocer's shop. The back window of his apartment overlooked a small garden and a large privy which was common to several families. The smell of the privy pervaded the apartment whenever the window was raised for purposes of ventilation.

The water supply had to be carried from the garden of one of the inhabitants who was supposed to filter it before distribution. This well is known as "Robertson's Well," and according to the report which I now show you, contained 34·16 grains of solid matter to the gallon, a large amount of which was "oxydized sewage matter."

"No. 1, ROBERTSON'S WELL.

"Total Solids per Gallon, 34·16 Grains.

"No. 2, GLENGARNOCK FACTORY WATER.

"Total Solids per Gallon, 24·64 Grains.

"(For comparison it may be mentioned that the total solids in a gallon of Dalry gravitation water are about 6 grains, while in Loch Katrine water the solids are under 5 grains.)

“REMARKS:—The water from Robertson’s Well is clear, bright, and colourless, but contains a rather large amount of oxydized sewage matter. Glengarnock Factory Water is slightly milky or opalescent from the presence of traces of suspended matter, and although contaminated with sewage products, it is less so than Robertson’s. Such waters are in many cases used for a long time without giving rise to serious results, but they are DANGEROUS during the prevalence of epidemics; and should not then be used, and not at all if purer water is obtainable.

“WILLIAM WALLACE.”

Soon after my patient went down, he began to be troubled with looseness of the bowels. He traced this to the water, and by my advice gave up drinking it. His bowels then resumed their normally constipated condition.

I have good reason to believe that typhoid fever is endemic at Glengarnock. However that may be, this at least is certain, that a child had just died, when my patient went down, of an ailment which was not quite understood at the time, but which is admitted now to have been enteric fever; and the undisinfected stools of this child must have passed into the drains of the mill, or been cast into the open privy connected therewith. Now, the water supply of the mill, known as “Glengarnock factory water,” according to the same report, contained 24·64 grains of solid matter to the gallon, and was contaminated with sewage products to an extent which, later on, led to its being condemned as unfit for drinking purposes. The important fact for us to note here is, however, that the presence of sewage in the water at all indicated communication betwixt the drainage system and the water supply system; and that at the time we are concerned with, the sewage was not simple sewage, but sewage containing the excreta of one or more enteric fever patients.

The next fact I have to tell you is, that the drainage of the factory site was bad, tending to stagnation. Since the epidemic alluded to in Dr. Wallace’s report the drains have been opened up and a new system adopted. The fever began to be epidemic in July, and very soon forty of the factory hands were down with it; many cases proved fatal, and many others suffered relapses.

Such, then, were the hygienic surroundings into which my patient was thrust, by reason of his appointment, and I need hardly remind you that a person in perfect health going into a district where enteric is endemic, or epidemic, is far more likely to catch the infection than a constant resident. Indeed, this was illustrated by this very epidemic, in the person of more than one besides my patient. For, *inter alia*, one of the under-

managers of the factory got married early in June, and his wife, brought from the south of England, soon fell a prey to the fever.

19th August, 1882.—On this day patient consulted me regarding a falling off in his appetite, and a general feeling of malaise. His pulse gave no indication of anything being wrong, his tongue nowise different from the usual, being clean, with a very slight fur far back on the dorsum. I cheered him up and prescribed an alterative stomachic and a dose of Pulv. Rhei Co. The hour of seeing him on this day was 1 P.M.

26th August.—This day he visited me again, in the evening, about 8 o'clock. He told me that he felt thoroughly exhausted, and that he had got through his week's work with great difficulty; that he had taken the powder and medicine; had been troubled with diarrhœa, having had to get up more than once during the night for the purpose of stooling, and had been bothered in this way, more or less, during the whole week. He had also suffered continuously from headache. Not that he had much pain in his head, but a constant feeling of tension, and as if there was a heavy load bearing it down when he put on his hat; and, as he wore his hat all day in the factory, this feeling became at times insupportable. He was glad when night came, so that he might tumble into bed at once. He had eaten very little all through the week, and his appetite was entirely gone. Pulse, soft and diffluent, 140. Temperature 103°.

A diagnosis of enteric fever was made at once, the patient was informed to that effect guardedly, and ordered to bed and milk diet.

27th August, A.M.—Pulse 120; tongue clean, except very thin white superficial fur; temperature 103·2°. *P.M.*—Temperature 104·4°; pulse 120.

The bowels felt "bagged," to use the patient's phraseology. The whole abdomen is fuller than it should be, considering recent history. There is no tenderness anywhere, however, neither on deep nor superficial pressure. Slight gurgling is elicited in the right iliac fossa, however; not by any means typical though. There is no sense of fluctuation, and when the patient is made to turn on his side or face, the physical signs remain unaltered. There are no spots visible anywhere. There is no cough and no pulmonary dulness. There is no cardiac murmur, but the second cardiac sound is accentuated. Impulse weak. Respirations 18. Patient is deaf comparatively, but there is no wax in the ears to account for it.

The headache has passed away; but there is no delirium.

The decubitus is dorsal and lateral, and no tendency is shown to draw the limbs up towards the abdomen.

There is considerable marasmus already, and slight subsultus and starting of the lower limbs.

The urine is not abnormal in colour, but throws down amorphous urates and mucus. Not examined for albumen.

He reckons this to be the 18th day of his illness, dating from when he first felt the headache and lost appetite.

28th September, A.M.—Temperature 102.2° ; pulse 108. *P.M.*—Temperature 104.6° ; pulse 120. There has been no motion of bowels since patient took to bed and was placed on milk diet exclusively. Therefore ordered *3ii Ol. Ric.*, and this to be taken every second day unless countermanded.

29th Sept., A.M.—Patient has had two copious ochrey pea-soupy stools following the castor oil. Temp. 100.4° ; pulse 96. *P.M.*—Temperature 102.2° . Pulse 108. *30th.*—Temp. *A.M.*, 99° ; pulse 84. *P.M.*—Temp. 99.4° ; pulse 100. *31st.*—Temp. 98.6° ; pulse 84, *A.M.* No observation, *P.M.* *1st Sept.*—No observation made this morning. In evening it was apparent that patient had had a relapse or recrudescence. Temp. 104° ; pulse 120. During a careful examination of patient's abdomen and chest, a strong fever smell was noticed. There is a fever flush on his face also, and he is a little excited, but not delirious. Tongue clean and moist. No spots visible. Condyl's fluid * has been placed in dishes in the room, and is used to deodorise the stools. Patient has refused to go to hospital, and has an amateur nurse. He is, therefore, very anxious to give as little trouble as possible, and so persists in getting up and traversing a long lobby to go to the water closet.

On the 11th, 12th, and 13th he had diarrhœa. The abdomen was specially tumid, and there was gurgling well marked in right iliac fossa. He got a Niemeyer's powder.

On 15th he had a severe diaphoresis, and the temperature ran down to 99° *A.M.*, from 104° the previous evening. No observation could be taken that evening, but on morning of 16th temperature was 99.2° .

On the 15th, unmistakable typhoid spots were first observed. Previously, spots of a doubtful character were seen, but not noted; but these were probably true typhoid spots also, for I have noted on the 16th that they are fading; and from this date onwards fresh crops of spots continued to be seen on the abdomen. A record of their appearance and disappearance has not been kept, as it was not considered of

* Terebene was ordered, but objected to on account of its smell

any moment, there being no question as to diagnosis now. On the 16th, 17th, 18th, 19th, and 20th there was a daily diaphoresis, that on the 20th being like that on the 15th, severe. On the 20th and 21st, the temperature sank below normal in the morning. The evening temperature on 20th, however, was 103°. On the 21st, about noon, a severe chill was experienced, almost verging on collapse—all the extremities being exceedingly cold, and requiring hot applications and increased clothing to bring about reaction.

On the 22nd, 23rd, and 24th, I have noted that the same phenomenon took place. Each of these days a careful physical examination was made for the purpose of discovering complications. Nothing of the kind could be made out. The abdomen—still tumid—was not tender in any part. Two spots were observed to be fading. It must be noted, however, that the patient for a week or ten days past had been troubled with his bladder. He had to keep a bottle beside him in bed, the calls to urinate being so frequent. He did not make too much water though in 24 hours. It was very pale, and heavily loaded with amorphous urates and mucus. Not examined for albumen.

The action of the Niemeyer's powder was sufficient to arrest the diarrhoea from which he suffered on 12th, 13th, and 14th, so castor oil was resumed in 3ij dozes every second or third day, and this continued throughout the remainder of his illness.

On the 8th October his temperature was 101·2°, and ran down below normal on the 9th. There was also a diaphoresis. It ran up again at night to 102°, and then declined by 1° or thereby each evening till the 12th, when it was normal in the evening. *As this decline coincided with an improvement in all the coetaneous phenomena, I judged that the relapse was terminated.* The patient was able to take an airing both on the 10th and 12th, and the use of the thermometer was discontinued. On the 14th he had a slight meal of meat and potatoes. On the 15th, 16th, and 17th he seemed to be still convalescing, and on the 18th I saw him, when he intimated his intention of going down to Greenock for a few days' change. I thought him somewhat excited, and wished to take his temperature, but he objected. And here it may be mentioned that, owing to the fact that during the greater part of his illness the patient felt so little sick, and the thermometer was the only certain means of knowing that the fever persisted, together with the circumstance that he was most anxious to get back to his employment, the use of the thermometer was

most obnoxious to him. He frequently protested that it must be wrong, &c. Further, there were two thermometers used, the first having been broken, but all the observations were corrected by the Kew certificates. He went to Greenock on the 18th, was unduly fatigued by the journey, and gradually became worse, and on the 22nd he was seen by Dr. W. A. Wilson, who stated that he was suffering from another relapse, and that he considered he had got a week of it over.

I have written to Dr. Wilson, asking him what he thought of the case at this point, and here is his reply:—

"THORNCLIFF,
"GREENOCK, 3rd February, 1883.

"MY DEAR SIR,—I was from home for a day or two, hence the delay in replying to yours of the 31st ult.

"When I saw Mr. M. I had no doubt in my mind about the diagnosis, as far at least as one can be sure of a case of this kind in two visits. There were present the rose coloured spots, gurgling in right iliac fossa, with tenderness on pressure there, a fever temperature, and, if I remember correctly, diarrhœa.

"Some of these cases have a very remarkable chart, and are very tedious.

"What symptoms does he now present? Have you any reason to fear tubercular disease of bowels?—Yours very truly,

"W. A. WILSON, M.D."

The patient returned under my care on the 24th October. He was very exhausted; dry furred tongue; tremulous muscles; subsultus; flushed face; slight bronchitis. Strange to say his pulse was only 108, and his P.M. temperature only 100·4°. On the 25th his P.M. temperature was same, but on account of his generally prostrate condition he was placed on $\frac{zj}{i}$ brandy every four hours. This was soon taken off, however, as his pulse went up next day to 120 and his temperature to 103·4°, and simultaneously his bladder became paralysed—at least the paralysis which had been gradually supervening for two or three days became so pronounced that the catheter had to be used. At the first time of using it the viscus was much distended, and a full chamber pot of urine was drawn off. Urine pale, cloudy, and ammoniacal, not albuminous.

Patient placed upon a turpentine and nux vomica mixture.

On the 27th the tongue began to moisten, but pulse continued at 120, and temperature 100·5° and 104° morning and evening respectively.

On the 28th the turpentine was omitted from his medicine, digitalis and belladonna being added instead. Under these his

pulse and temperature fell till 2nd November. On evening of that day I could not see him till very late; and meantime, his bladder became so irritable that he made an attempt to pass the catheter himself. This he was in the habit of doing for himself some years previously, *sec. art.*, but now his tremulous hand entirely failed to guide the instrument through the jellified tissues of the penis. Whether he had lacerated the mucous membrane or not (he says himself that he did not) it is certain that when I next passed the catheter—a No. 10—blood in clot preceded the flow of urine through it and followed. This also happened for the next three times of using the instrument, and at this period it had to be passed three times daily. Then, till the 6th, when he had two turpentine capsules given him, blood followed the urine—broken down clots.

On the 7th the urine was drawn clear and free from blood, morning and afternoon; but in the evening it was observed that the urine itself was bloody—not smoky—but of a dirty carmine tint throughout. This phenomenon occurred till the 10th, when the patient was put on gallic acid and ergot, and all appearances of blood vanished from the urine.

The catheter continued to be used till near the end of December.

I could not get the temperatures taken from the 7th till the 19th, when a recrudescence or relapse took place again. The patient kept in bed and on milk diet all the time however. He was now placed on 2 grs. quinine three times daily.

On the 7th December, as the fever still persisted between normal in morning, or between that and 100° , and from 100° to 103° in the evening, it was decided to invite Dr. Finlayson to see if he could suggest any line of treatment whereby the febrile process could be made to cease and determine.

The Doctor made a most careful and exhaustive physical examination of the patient, with the view, apparently, of discovering some complication, but could find none. The visit was at 4 P.M., and the temperature then was 103° and the pulse 120. The Doctor was fully informed of the whole medical history of the patient, both recent and remote, and came to the conclusion that the diagnosis I had made continued correct, and in respect of treatment, that the quinine should be increased to 5 grs. *ter die*. This was done with the effect that the fever was kept, with one or two exceptions, below 102° . One of these exceptions occurred about the beginning of January, 1883, and I determined to see if the combination of salicin with the quinine would not stop it. With this view I ordered three powders of 10 grs. salicin. He was only able to take

two, however, as they made him feel so sick and unwell. After a day or two I tried salicylic acid, and ordered 3 powders of 10 grs. each. These agreed and reduced the temperature below 100°. Then three more were ordered, but he had only taken one when a very severe depression set in, and I was sent for hurriedly to see him. He was just rallying from a collapsed condition—temperature 105°, pulse small but soft and 100. His pulse never rose above 100 after this, and that only once; and by the 10th January he was apyretic, and continued so.

Remarks.—The etiology of this case appears to me to be well ascertained. It was, no doubt, owing to imbibition of the water, which Dr. Wallace's report shows to have been very foul indeed. The fact that it had a purgative effect at first is interesting; and as this evidently was not due to any mineral constituent, the inference that it was owing to an effort of the system to throw off an organic morbid constituent is obvious and legitimate. Moreover, it would seem that the system, for a while at least, was successful in this, as the incubation period of enteric is not reckoned to be longer than 29 days at the most (Parkes), Murchison's reckoning being 1 to 14 days.

As my report shows, however, the patient was subject to aerial infection, through the emanations from the privy at the back of the house in which he resided frequently pervading his bed-room, and if to this it be objected that there is no evidence to show that these emanations were in any way specific, I may say that there is very strong reason to believe that they were so, owing to actual presence of enteric fever dejecta. But, apart from this, I am bound to state that I lean strongly to the opinion that faecal fermentation alone is capable, under certain circumstances, of giving rise to enteric fever in those who inhale the effluvia arising therefrom, and one of these circumstances is, that the effluvia pervade the sleeping apartment. I need hardly tell you that Murchison was of this opinion, and although recent scientific researches seem to negative it, some cases which have fallen under my observation at different times are difficult of other explanation. One case, mentioned by me to Dr. Russell at the time of its occurrence, seemed pointedly due to this cause. It occurred in the person of the manager of a model lodging, who, after going to remove an obstruction in one of the privies which had become blocked up, was overpowered with the stench and vomited. About 20 days thereafter, he was seized with the headache peculiar to the early stage of enteric,

CHART A.—Continued.

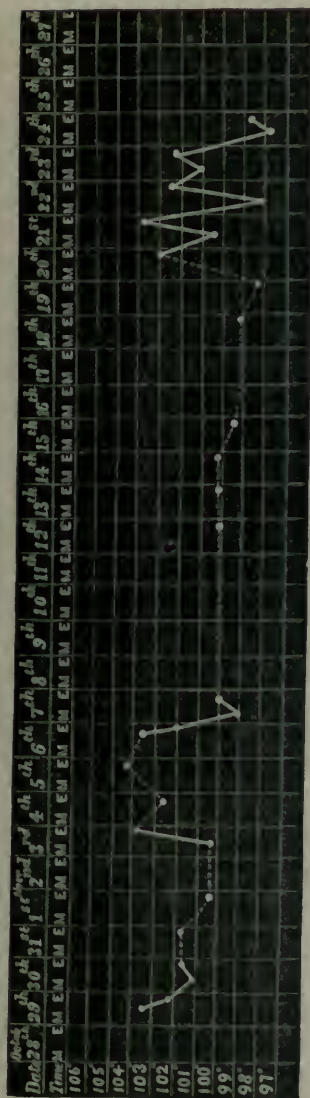
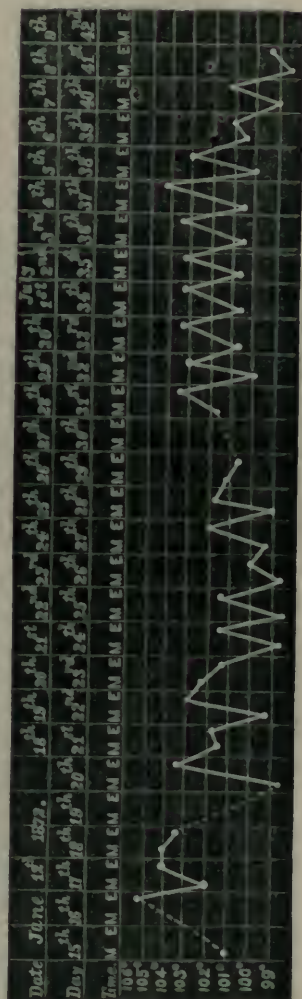


CHART C.—W. B., waiter, aet. 23, enteric complicated by cervical abscess.

Under Dr. Ogle, St. George's Hospital. Reported in *Lancet*, 2nd November, 1872, p. 631.

accompanied by pyrexia, and passed through a severe attack of the fever, extending to 42 days. His age was 55 years. He recovered.

Albeit, the subjective and objective symptoms in J. C. M.'s case were obviously those of enteric, and no other. They were so at the beginning, and they were so at the end.

I am aware that we may come to separate some of the cases, now classed enteric, from others, to which a different name may be given. A first step in that direction appears to have been made by Wernich * who divides all cases into four classes—viz., A, infectious ileotyphus (due to direct contagion); B, epidemic typhoid (due to contaminated food supply); C, local endemic typho-malaria (due to local territorial influences); D, idiopathic sporadic typhoid (due to some individual proclivity or peculiarity, admitting of the access *into the blood* of the special disease germ—*Krankheits Keim*—which he assumes to be always present, *even in health*, in the large gut.)

Supposing our science to admit already of such a classification, this particular case would fall to be classed enteric pure and simple.

In no case do we expect to find all the symptoms common to a disease, whether febrile or otherwise, present at one and the same time. We do not expect them invariably to present themselves in the same case, even at different stages of the complaint. And if this be true, as it is true, of all complaints, it is specially so of enteric.

In the *Lancet* for 28th June, 1873, you will find a record of a case wherein all characteristic symptoms were absent till the 23rd day, when perforation and death took place, the temperature having never risen above 100·6°. Dr. Brittan, of Bristol, who reports the case, remarks—

“It is a very curious clinical fact that, while in some cases of enteric the patient is speedily rendered prostrate by the severity of the general symptoms, in others he is able to attend to his ordinary business, and beyond, perhaps, a little fatigue and malaise, would never be suspected of having suffered from this fever did not a *post-mortem* examination reveal numerous ulcers in the ileum, one or more of which may have perforated the peritoneum. It is, indeed, not at all improbable that many persons pass through the course of this fever without exhibiting *any characteristic symptom or any symptom at all*. Why there should be this great difference in the manifestation of the same disease in different subjects has never been satisfactorily explained.”

* *Der Abdominaltyphus*. Hirschwald, Berlin, 1882.

Now, sir, what I wish to draw attention to at this point is, that we have no temperature charts of such cases—cases mostly occurring in private practice; and that, therefore, we are not in a position to say what like the temperature charts of such cases would be.

In fact, whereas we have a perfect plethora of data relative to typical enteric, there is a dearth so far as course of temperature is concerned, relative to aberrant cases.

CHART B.—Ed. B., Cabman, æt. 39. Under care of Dr. Henry Thompson, Middlesex Hospital. Disease, enteric fever. *Vide Lancet*, 9th May, 1874, p. 656.



Pulse range from 144 to 128.

Respiration range from 44 to 28.

In chart B, which I now exhibit to you, you perceive a very anomalous state of things. The pyretic stage, apparently terminating on the twenty-fourth day, whilst the true typhoid phenomena (subjective and objective), continued till the thirty-first day, and in an intensified form. I read you the remarks of Dr. H. Thompson, anent this case:—

“The main interest of the case centres in the prolongation of the so-called typhoid symptoms far into the period which the thermometer alone would have fixed for the convalescence. The delirium seemed worse than ever, the tremors and involuntary passage of fæces continued in full force, while the patient pawed the air and picked the bed clothes just as he had done during the height of the fever.”

Then he asks “whether there is not enough in the anomalies he enumerates to make us pause before we subscribe to all the dogmas of thermometry? Naturally, the physician looks with confidence on the first fall of the temperature below 99°—especially if in the evening—as a conspicuous guide to direct his prognosis and treatment. In this case it was impossible to

feel any assurance of the kind." The thermometer, in fact, was wrong in its chronology and as a practical guide, and in this respect he deplores deeply its shortcomings.

This leads me on to remark on the duration of typical typhoid, and I think Dr. Pearson Irvine is the most recent authority in the English language upon this point; and I quite agree with him in setting it down at 28 instead of 21 days. I am perfectly satisfied that the latter is wrong, though not so perfectly satisfied that the former is right. At all events, by reckoning on it fewer mistakes will be made than by reckoning otherwise. It is very convenient and gratifying to find such patients getting better before the time prophesied, but highly inconvenient to find them prolonging the agony beyond it. I have found a great many cases endure for 42 days or thereby—the pyrexia being continuous. Whilst I have been engaged writing this paper, such a case has been under observation. If I mistake not, the Prince of Wales' case endured a nearly similar length, and the case I have instanced as due to direct inhalation of sewer gas, endured the same period without any intermission and without complication.*

According to Dr. Irvine, the intermission may be of so short duration as to pass unnoticed, and he explains all cases enduring beyond 28 days on the theory of Relapse or Recrudescence. The intermission, when present, is certainly much more frequently to be estimated by hours than days; still less frequently by weeks. In my case I reckon the intermission to have lasted 3 clear days—viz., from the evening of the 12th to the morning of the 16th October. I regret not being able to afford you positive evidence of this intermission, as the patient would not take the temperatures himself, and the exigencies of practice entirely prevented my doing so. I do not regard the point as material to the diagnosis, however. Cayley, *On Typhoid Fever*, p. 78, alludes to 31 days as the longest apyretic interval recorded, and lately, at the Pathological and Clinical Society of Glasgow, Dr. Robert W. Forrest reported a case which had an apyretic interval of this extent. This case possessed the great merit of having been very carefully observed, and of showing positive evidence of the apyretic interval on the chart.

Chart C is that of a case which happened under the care of Dr. Ogle, the entire duration of which extended to 112 days. The chart is aberrant so far as it goes, in respect that it does not

* On this point Cayley (*loc. cit.*) says, "We may have an attack of typhoid of an indefinite duration without any distinct remission."

indicate remissions on critical days. The case also indicates what is true in practice, and what is illustrated by my own case, that as often as not, relapses are even more prolonged and more serious than the primary fever. This is opposed to Dr. Irvine's observation, but it must be remembered that his cases were observed in hospital; and his conclusions, though legitimate and logical inferences from his own cases, were not intended to be dogmatic assertions of law. It is even laid down by Wunderlich (Seguin's Edition) that relapses are apt to be more prolonged and the typhoidal type more obliterated in patients above* 35 or 40 years, in those who have undergone undue† muscular exertions, and by complications and mental influences, all which were present together in the case of my patient. Further, in regard to protracted recoveries he admits‡—"we are not certain that the course of typhoid must have a fixed duration or cannot occur without certain symptoms reckoned pathognomonic."

Therefore, so far as mere duration of fever is concerned, my case is not so phenomenal as appears at first sight. Its duration I reckon to have been 163 days altogether.

Dr. Gibson reports a case in the *Lancet* of 8th January 1880, which had a duration of 120, and Dr. Forrest's case, just alluded to, extended over four months or a similar number of days.

The course of the pulse tracing in my case is not less remarkable than that of the temperature; but Broadbent, § p. 215, says that, "even during the presence of marked fever the pulse may at times sink below 50 or 60. In one case of Dr. Murchison's, it fell to 37."

With regard to the chronology of spots I may just quote Finlayson's *Manual*. At page 101, "this eruption seldom appears before the seventh day of the fever, but its appearance is often much later. Fresh eruptions may continue to appear until convalescence is established fairly; and they may appear during a relapse, even although none were present in the first attack." On page preceding it is also written that the abundance of the eruption bears no relation to the severity of the case, and not unfrequently no eruption can be found at all.

In my case, rash may have been out about seventh day, and passed away before coming to me on eighteenth day.

Whilst referring to the rash I will draw your attention to the report of a highly aberrant case reported by Dr. Duffin of King's College Hospital, in *Lancet*, 24th July, 1869. In this case an erythematous rash, florid throat, enlarged tonsils, and

* P. 121.

† P. 122.

‡ P. 125.

§ *Practice of Medicine*.

urine ½th albuminous were present on the ninth day of illness, followed by desquamation; erythema re-appearing on twenty-ninth day, but no lenticular spots throughout, no diarrhoea, no abdominal tenderness or tympanites; some constipation had to be overcome. Albuminuria again on thirty-seventh day, in middle of aggravated typhoid symptoms. Death on fortieth day—twelfth from relapse. Temperature during last seven days 105° E and 104° M.

Post-mortem.—Numerous ulcers of Peyer's patches in various stages. *Kidneys healthy.*

On this case, *inter alia*, Dr. Duffin remarked that the thermometer had afforded valuable evidence as to the true nature of the complaint, for although affording unusual phenomena in early stage, it was characteristically typical of typhoid from 11th to 22nd days. He observes, however, that *in itself it would not suffice to make the diagnosis, since Wunderlich has figured an almost similar curve as occurring between the same dates in a severe case of scarlet fever.*"

From all which facts I think I am justified in asserting that it would be very presumptuous in any one, from the mere inspection of a temperature chart, and especially a chart admittedly imperfect, to conclude that a certain case represented to be typhoid was not so. The chart of my patient's case was never intended for publication as you can see, nor was it in contemplation that it should be used for any other purpose than to help me from day to day in the treatment of the case. This it entirely failed to do, and was rather a source of perplexity than otherwise. This, no doubt, was partly owing to the observations being less frequent and more irregular than they should have been. Making allowance for this, however, I think it is possible to trace the type through it, modified as it was at various stages and throughout by—

1st. Age.

2nd. The severe muscular exertion he had undergone during the first 18 days.

3rd. Continued mental anxiety about his situation, which he lost during his illness.

4th. The diet—a very light one truly—of meat and potatoes which I imprudently allowed him to have on the 13th October.*

5th. The journey to Greenock and back, and the muscular efforts which he persisted in making by going to the closet.

6th. The effects of anti-pyretic medicines. There is a

* Cayley (*loc. cit.*, p. 83) holds that these errors of diet, *i. e.*, the early resumption of solid food, are in most cases beneficial.

general consensus of opinion now that these medicines are distinctly capable of modifying the course of fevers, and especially of converting a lysis into a crisis. At all events, this is unmistakably what happened in my case.

7th. Possibly the cystitis set up during the second relapse. This disease has no defined effect on the temperature when existing alone, but as a complication in enteric would be most likely to influence the curve of the latter.

I may mention in conclusion that the cystitis is persisting as a sequela of the case; but that otherwise the patient is enjoying good health, and has laid on an amount of flesh which very nearly brings him up to his former weight. He has been subjected to no specific treatment whatever.

P.S.—22nd May, 1883.—The patient still continues in good general health, and the cystitis is much ameliorated.

ON AURAL DIAGNOSIS.

By JAMES PATTERSON CASSELLS, M.D.,

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(*Lecture delivered in the Glasgow Hospital and Dispensary for the Diseases of the Ear, February, 1882.*)

THE SUBJECTIVE SYMPTOMS OF EAR DISEASE.

THE subjective symptoms of ear disease that are usually met with in the course of the various affections of the organ of hearing are one or other, or all of the following, according to the nature and stage of the disease:—

Thus, in recent cases we have the following symptoms:—Deafness; pain; tinnitus; discharge. Less commonly we have vertigo or giddiness; reeling or staggering in the gait of the patient; a sense of feeling of lightness or tightness in the head; vomiting; cough; itching in the ears or throat of the patient.

In chronic cases we find also certain anomalies of the sense of hearing associated with some of the commoner symptoms of ear disease just enumerated:—

Thus we find that the patient may complain of an echo in the ear, or a snapping sound, or a tick-tack noise like a watch ticking (owing to contraction of palate muscles); hearing

better in a noise; hearing high tones or voices better than low ones, and *vice versa*; hearing better in a cold atmosphere or *vice versa*; hearing worse in an artificially heated atmosphere or apartment; hearing monotonous and single voices well, but unable to engage in general conversation, or when a number of individuals are talking together; hearing over well (hyperacusis); hearing voices in the ear (aural hallucinations).

THE OBJECTIVE SYMPTOMS OF EAR DISEASE.

The following are the fundamental objective tissue changes that take place in the ear in disease:—

Abnormalities in the form and structure of the membrana tympani; perforation; ulceration; congestion; ulceration of tissues, both hard and soft; effusions into tympanic cavity; discharges from it; polypus; necrosis; caries; polypus granulations; paralysis; and the results of inflammatory processes in the tissues generally, such as condensation or sclerosis, fixation, hypertrophy and atrophy of them.

THE SUBJECTIVE SYMPTOMS OF EAR DISEASE TREATED OF IN DETAIL.

Deafness.—Before speaking of this symptom and its significance as a sign of the presence of disease in the ear, I desire to make some remarks on the word itself.

The term “deafness,” which is, indeed, a good old Anglo-Saxon word, is at the present time generally employed to denote every degree of disturbed function, ranging from slight dulness of hearing up to and including the non-perception of all sound—*i.e.*, from partial to complete loss of the sense of hearing.

Doubtless, the term deafness, has by long usage and common consent acquired a conventional meaning, which is pretty well understood by most surgeons and patients as well, but this conventionalism is undesirable because of the indefiniteness that it attaches to the word.

I therefore propose to use the term deafness with a little more precision, and therefore in a manner more in accordance with scientific usage.

I do not desire, however, to expunge the word from the language of the aural surgeon, nor do I seek to set aside the indefinite meaning attached to it in the vocabulary of patients suffering from ear disease.

What I have to propose is this; let the expression "dulness of hearing" mean any impairment of function up to, but not including, the non-perception of articulate speech; for this latter condition I would suggest the use of the expression "loss of hearing." In those cases in which there is not only "loss of hearing," but total non-perception of transmitted tones, I would suggest that the term "deafness" be employed to express that state—total non-perception of *all* sound.

Hereafter, therefore, when the expressions "dulness of hearing," "loss of hearing," or "deafness," are employed in these lectures, the meanings, given above, will attach to them respectively.

We now proceed to consider the significance of impairment of the function of hearing as a sign of disease of the ear.

Defective hearing, in a greater or less degree of intensity, is one of the most important, as it is the most constant of all the signs of aural disease.

It is generally the first sign that a patient has of the existence of something being wrong with the organ, and frequently it remains as the sole *subjective* symptom to indicate the presence of a defect in the apparatus of hearing.

At one time, indeed, deafness was regarded by surgeons as a disease, and was treated accordingly, while even now, patients seek the help of the surgeon for the relief of a deafness alone, seemingly regardless of the presence sometimes of more serious symptoms which surround the case, and may even be imperilling their lives.

This symptom may be sudden or gradual in its onset, and the impairment of function may be any degree of dulness up to loss of hearing or even deafness. It may be the only existing evidence of the gravest disease, as well as of the most trivial one of the apparatus of hearing, and these diseases may exist in either of the three divisions into which the organ is anatomically divided. Thus, the sudden occurrence of a high degree of dulness of hearing of one or both ears, without other symptoms, especially if the patient has had similar attacks before, accompanied by intervals of perfect hearing, suggest that in such a case the external meatuses are occluded by cerumen.

On the other hand, such an occurrence as is here supposed, sudden and intense dulness of hearing, with the accompaniment of apparently causeless vomiting, or with a reeling in the gait, is of more serious import. In such a case further examination may show that the labyrinth is involved, and that the most active measures will be required to combat the disease.

Pain.—Pain in the ear, or as it is sometimes called, ear ache, is a most significant symptom. Usually it tells its story plainly and unmistakably, calling by its violence for immediate attention and help. Sometimes it indicates that a drumhead, which is stretched to the bursting point by a tympanum full of fluid, requires to be looked to and incised; or, on the other hand, that the inflamed, and therefore tender, periosteal covering of some bone needs to be incised to avert further suffering and more serious consequences; or that a tender and painful furuncle in the external meatus needs the free use of the knife.

While it may indicate in this way that it has an intra-aural origin alone, this symptom sometimes indicates that it is not a sign of an ear disease; as, for instance, when it is due to an approaching attack of herpes of the auricle or external ear region, and with the advent of which it ceases. Or it may be due to a bad tooth or an ulcerated state of the edge of the tongue, or when the throat is ulcerated in a simple way, or as it is in cases of acquired syphilis. Then, also, pain of a periodic character is met with in the persons of those who are the subjects of an ear affection due to malarial poisoning, and in those persons who are overworked and under fed, and who get too little sleep, as students and night watchmen.

Pain, therefore, may be significant of disease in the ear or in adjoining parts, or in organs remote from it. In general, the character of the pain in ear diseases is similar to that which arises in the course of acute inflammatory disease in the other organs of the body, except that which occurs in the course of an acute tympanitis; then it is described to be of the most exasperating kind, and exhausting in the highest degree.

Tinnitus.—The character of this symptom is variously described by patients, each one likening it to some familiar sound. Thus, the old woman likens it to the singing of the kettle on the hob; the engineer likens it to the steam blowing off; the sailor to the sound of the wind as it whistles through the cordage of his vessel; and the countryman to the rustling of the leaves, the noise of a distant waterfall, or other natural sounds.

Divested of all exaggeration in the description, tinnitus may be said to be either noisy, musical, or pulsatory in its character, each of the phases being indicative of different pathologic states.

Thus, a "noisy" tinnitus usually points to some abnormal condition of the outer surface of the membrana tympani, and which usually is the result of the presence of foreign bodies

in the meatus or in contact with the surface of the membrane itself, or to syphilitic affections of the organ, especially those that are situated in the labyrinth or internal ear.

A "musical" tinnitus generally indicates:—1st. A state of matters in which the intra-labyrinthine pressure or tension is abnormally increased, such as occurs in the catarrhal affections (acute and chronic) of the tympana and Eustachian tubes, and their sequelae, contraction and fixation of the elastic structures of the conducting apparatus.

In such cases this symptom in the ear is the equivalent of the pain which long continued pressure on a sensory nerve calls forth, or the flashes of light that are induced by pressure on or within the eyeball.

2nd. It may be the result of a circumscribed contraction of the osseous walls, either of the jugular or carotid canals, as these pass through the temporal bone, or an exostosis, benign or syphilitic.

3rd. It may be the manifestation of some defect in the circulatory system, in which musical murmurs, that arise in the heart, are propagated along the vessels to the ear and heard there, such as along the aorta and carotid from vascular disease, or in the jugular from obstruction to the return blood from the head, or in this vessel in debility.

The "pulsating" tinnitus is always synchronous with the heart's action, or nearly so, and is indicative of some disturbance in the blood supply of the labyrinth. This disturbance mostly comes from causes that suspend the inhibitory power of the cervical sympathetic, and especially that of the lower cervical ganglion, such as is caused by the effect of quinine in some persons, and by gastric and hepatic troubles in those who are dyspeptic or gouty.

The former two varieties of this symptom, the noisy and the musical, for the most part always indicate disturbances of tympanic tension or intra-aural tissue changes, such as atheroma of the arterioles of the cochlea, especially in old people who have an areus around the corneae, accompanied by hardness of vessels elsewhere. The latter variety, the pulsating, is an indication of some disturbance in the functions of organs beyond the hearing apparatus, and affecting the ear secondarily.

We may, however, meet with cases in which all these three varieties of tinnitus may exist, sometimes at the same time in the same patient, or, as is more common, alternating with each other, and giving rise to the most distressing fears on the part of the patient, who is anxious as to the meaning of such a tumult of sound in the head; indeed, many patients thus affected express the desire to have the noise in the head or

ears removed, adding to this desire the request to "leave their deafness alone," so much does this unceasing annoyance trouble them over and above their defective hearing. Sometimes, indeed, the noise within the head and ears of the patient is such, that a desire is expressed to have the tinnitus removed, as it seems to be the sole cause of the deafness.

Thus it has come about that this symptom, like that of deafness, has been regarded and treated as if it were an independent disease.

It has been alleged, also, that in many such cases of tinnitus as are here referred to, the patients, especially those who were of the nervous class, at last became insane, being the subjects of aural hallucinations.

Discharges.—A discharge from the ear, whatever its nature may be, is a symptom usually of grave import.

The late Sir William Wilde, with the far-sightedness which characterised him, has said of an ear-discharge, or "otorrhœa," as it is called, that once it is in existence, no one can tell how or when it may end. So significant, indeed, is an otorrhœa as a symptom of the presence of serious disease, that Life Assurance Companies of late years wisely decline to insure the life of an individual with such a discharge, until a special report has been obtained as to the state of the person's ear. (See my report on *Ear Disease and Life Assurance*, read before the International Medical Congress at Amsterdam, 1879.) Even then, and if the report be favourable, the insurance is not effected without a "loading," which is not inconsiderable in amount.

Discharges from the ear are of several kinds; thus, they may be serous or mucous, or of blood or pus, or a mixture of one or more or all of these.

Discharges consisting of pure serum are seldom seen, because these cases in which it occurs are comparatively rare; but after paracentesis of the membrana tympani, in numerous cases of serous catarrh of the tympanic cavity, I have witnessed most copious outpourings of pure serum to an extent in some cases great enough to make the patient quite exsanguine. (See paper on *Sewer Gas and Ear Disease*.)

Mucous discharges are commonly seen as thin and translucent, or as milky-like fluids, sometimes clear, tenacious, and colloid, at other times flaky or even semi-solid.

A discharge of pure blood is seldom seen in cases of ear disease, except in those that are of old standing, and then only when some vessel of importance, such as the carotid artery or the jugular vein, has been opened in the ulcerative process. In such cases the suddenness and copiousness of the flow and

the history of a chronic ear affection, accompanied by purulent looking otorrhœa, set the point at rest.

In patients of the hæmorrhagic tendency a copious outpour of pure blood may follow the removal of a small polypus from the cavity of the tympanum. I have had several such experiences; in one instance in a girl of 14 years, 30 ounces of blood were lost by the patient in four hours; in that case the blood literally gushed from the orifice of the meatus, leading me to believe at first that, in operating for the removal of the polypus I had opened one or other of the vessels, the names of which I have just mentioned.

Pure blood discharges of limited amount from the ear in the absence of other disease in the organ have been reported by some observers as indicative of the presence of Bright's disease. I have not seen any such cases, although in the person of a medical friend, who was seized with a violent pain in the ear, which was followed with a discharge of a teaspoonful or more of pure blood (as he reported), I feared from his appearance that some kidney affection existed. On examination of the urine, its constituents were found to be normal and an examination of the ear, the diagnosis of the case was sudden rupture of the membrana tympani from some unexplained cause, and that the hæmorrhage came from the edges of the wound in that membrane.

I can conceive also of the probability of a discharge of watery like blood from the lining membrane of the external auditory meatus in cases of purpura and in scurvy, but I have not seen any such.

I have seen a case in which an attempt was made to impose upon me by a patient, a girl aged 15, who simulated bleeding from the ear by showing me a handkerchief stained with the blood of the menstrual discharge.

Discharges of blood come from the meatus in cases of traumatic rupture of the membrana tympani, and in cases of fracture of the skull, when the line of fracture passes through the cavity of the tympanum and the membrana tympani from *contre coup*, or from blows on the chin, whereby the bony plate that forms the anterior wall of the meatus is fractured.

Seemingly easy of diagnosis, it is not always possible to say where the origin of the hæmorrhage is.

An eminent surgeon is said in such circumstances to have ligatured the jugular vein in order to stop the hæmorrhagic discharge from the ear. The patient died. At the *post mortem* examination it was found that the bleeding had resulted from erosion of the internal carotid.

CASE OF GLASS TUBE IMPACTED IN BLADDER
AND URETHRA.

BY JAMES A. ADAMS, M.D.,

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Glasgow Royal Infirmary.

I INCLINE to think that the following case is unique as well in its nature as in the cause of its production.

S. B., aged 34, a healthy mechanic, consulted me on 5th April last. He stated that he had been in the company of his sweetheart at her lodgings while in a very intoxicated condition, had fallen asleep, and, on coming to his senses, he experienced severe pains in the lower part of his abdomen internally, and also in his perinæum immediately behind the scrotum. In the latter situation he felt a "hard lump," and he had frequent inclination and great difficulty in passing water. Suspecting that some trick had been played upon him to his injury, he closely cross-questioned the woman and elicited the fact that she had thrust into his urethra a glass tubular rod, which she had procured somewhere and used for dropping a cure for toothache into a decayed tooth. The rod, she said, had slipped beyond her grasp, and she determined to say nothing about it, evidently relying on the *vis medicatrix naturæ*. The man suffered and endured his sufferings for above three weeks, through intense shame, until his condition became unbearable, through perpetual straining efforts to empty his bladder. He then consulted a medical gentlemen, who referred him to me.

On examination I readily ascertained that a hard substance was impacted in the course of the urethra, and this substance was moved slightly forwards when the patient made one of the straining efforts that were now almost continuous. Nothing could be felt over the pubic region, and the foreign body could not be reached by a digital examination *per rectum*. The urine was clear and healthy, and there had been no appearance of blood passing from the urethra.

As the indications were unequivocal, I placed him in the position for lithotomy. He objected to being placed under chloroform, having confidence in his own powers of passive endurance. Aided by my friend, Mr. William Rankin, student of medicine, a sound was passed until it struck with a distinct "click" against a foreign body. An incision in the mesial

line of the perinæum required to be followed up by cautious dissection, owing to the spasmodic jerking movements of the patient, who was everything but steady. I opened the membranous portion of the urethra, and inserting a small nasal polypus forceps under guidance of the sound, readily laid hold of and extracted a glass tubular rod fully six inches in length, and of the diameter of a No. 10 catheter.

Only a few drops of blood flowed from the wound, and there was no escape of urine. A pledget of lint soaked in compound tincture of benzoin was applied, and the patient was confined to his bed only a few days, as the wound healed very rapidly. The irritable state of bladder and consequent distress rapidly subsided, and within a week he felt in perfectly restored health. About this time a discoloured spot, of the size of a half-crown, appeared in the upper part of the groin on the right side, and it was somewhat tender on pressure, but it soon disappeared.

Cases of foreign bodies getting into the male bladder by way of the urethra are not singular. Thus, a soft flexible catheter in whole or in part is liable to become imprisoned. And M'Cadge * records a case in which he extracted a piece of stearine candle seven months after its introduction into the male urethra. In such cases it is easy to understand how a soft non-resisting foreign body may remain and be endured for a lengthened period without occasioning great distress or serious mischief. In the present case, the chief points of interest appear to me to consist in the patient's escape from an ever present risk of perforation or abrasion or wounding of the bladder or urethra, liable to be caused by the two sharp ends of the glass rod—an escape from the great risk of the rod getting broken into several pieces—the absence of any structural lesion following on the incarceration of a piece of glass with projecting ends for such a lengthened period, and in a situation where the sensitive soft parts were in continual movement, and in the rapid recovery with absolutely no after troublesome symptoms.

* *Brit. Med. Journal*, 15th November, 1873.

A CASE OF TRAUMATIC TETANUS TREATED UNSUCCESSFULLY WITH CALABAR BEAN.

By WILLIAM JOHN LAWRIE, M.B. & C.M. (Glas.),
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A. H. was admitted to the Glasgow Royal Infirmary on the 31st of March, 1883, suffering from severe burns of both feet. The epidermis, derma, and superficial fascia were removed from the dorsum of both, exposing the muscular tissue lying beneath. The muscles were also exposed on the inner side of the left foot, leaving a raw, bleeding surface. While at his employment at an ironwork, the patient had inadvertently stepped into a mass of molten metal distributed on the ground. He was removed immediately to the hospital, and was seen two hours after the accident occurred.

Up to the 10th of April the patient seemed to be progressing favourably. On the evening of that day, however, he remarked to the nurse that a pain had commenced in the gum of the right side of his mouth. This symptom did not attract special attention at the time, but at the morning visit he complained of the same pain, and also of a feeling of tightness over the right side of the chest. Suspicion of tetanus was roused on hearing of this complaint, which was raised to a certainty when he complained of a feeling of constriction in the muscles of the jaws, causing slight difficulty in opening his mouth. He was immediately prescribed Ext. Physostig. $\frac{1}{2}$ gr. every half-hour, to be continued till the symptoms abated.

During that day he was closely watched, and it was noticed that he sweated to a very great extent, at the same time complaining of great weakness. Beads of perspiration were to be seen standing on his forehead, and over the entire surface of his body. To such an extent did this go, that his night shirt became thoroughly moistened by it. During the forenoon he constantly complained of cold, chiefly affecting his lower limbs, which could not be relieved, even although he was furnished with additional bed clothes and hot pans, at his own urgent request. In the afternoon the first symptoms of contraction of the body were noticed. This first caused him to be drawn slightly backwards and retained in that position, but exacerbations of spasm were not present up to this point. When a hand was placed on the abdomen

or chest, these parts were noticeably hard and rigid. The surface was moist and somewhat cool.

After remaining in this state for several hours, slight exacerbations of the state of spasm were observed. These were most noticeable when any slight noises occurred in the ward, or when he was spoken to even in a low tone of voice. Having begun in the back, the fits rapidly spread to the jaws, which were quickly drawn together and remained closely contracted. The muscles of the face were distinctly drawn back, causing the characteristic tetanic grin. But what was especially noticeable was an arching of the eyebrows at their outer parts, combined with knitting of their inner portions, giving a peculiar frowning expression to the face. Speech was greatly affected, so that he could with difficulty articulate distinctly enough to be understood. Both upper and lower limbs were perfectly free from spasm, his hands being constantly employed to remove the perspiration from his brow, and to sip small quantities of milk.

During the night the tetanic state increased considerably in severity, the spasms now causing great pain. On the advent of an attack his body (which always maintained a curved condition) was drawn into a distinctly opisthotonic state, and at the same time a cry escaped from his lips, rising in loudness and pitch up to the acme of the spasm. The cry was peculiar in character, and appeared to be perfectly typical. Having once heard it a case could be almost certainly recognised by one hearing it, even though the patient were not in the same room. On being asked if the spasms were painful, he complained greatly of their severity, and anxiously asked if they would continue long.

The following morning, as there was no abatement in the rigidity and spasms, the dose of calabar bean was administered more frequently. Half a grain was given every twenty minutes for two hours, and then suspended for two hours. It was then resumed in quarter grain doses every twenty minutes for four hours, when it was again withdrawn. After an interval of an hour a quarter of a grain was again given every twenty minutes, for three and a half hours. At the end of that time, twelve hours had elapsed since the dose was increased, and in all, eight and a half grains of the bean had been given, yet no diminution in the amount or in the number of the spasms could be noticed. In half an hour the bean was resumed in half grain doses, every twenty minutes for two hours. Two minims of croton oil had been given several hours previously, and his bowels were now freely opened. After this,

thirty grains of chloral hydrate were given to induce sleep. This was successful only to a limited extent, as the spasms were absent for only half an hour. They then returned, but in a slightly less severe form. One grain and a half were given during the next hour, and the spasms appearing somewhat relieved, the medicine was not continued. They again returned, and the bean was resumed in half grain doses, for the next six hours. The jaws at this time were seen to be much relaxed, there being three quarters of an inch between the front teeth when the mouth was open. The patient was much troubled at this time by an excessive flow of mucus, which could be expectorated only with difficulty. There was also a great discharge of gas per anum. The bean was again resumed in half grain doses.

The burns on the feet were now dressed in order to remove all irritation, if such existed, but they were found to be clean and healthy.

Throughout the whole period of his illness patient was well supplied with beef-tea, brandy and egg mixture, and plain tea. He partook of all of these with relish. He had no difficulty in swallowing any of them, as the œsophagus was not at all involved in the state of spasm that affected other parts of his body. His pulse was full and soft, registering 120 per minute.

In the evening, while apparently somewhat easier, he asked for and obtained a cup of tea. When in the act of drinking he was suddenly seized with a most severe and prolonged spasm. After this he was found to be much changed for the worse, lying on his back unconscious and relaxed, and breathing rapidly. Mucus gathered in the larynx, increasing the difficulty he had in drawing breath. Tracheotomy was thought of, but the patient was evidently too far gone for that to have been available. He was comatose from this time to his death. On being spoken to or shaken he gave no reply. The pulse at the wrist was remarkably good, and the heart could be felt beating strongly. He died a few seconds later, the respirations ceasing first. Several beats were counted at the wrist after all respirations had ceased.

After symptoms of tetanus had arisen the patient survived 96 hours. The first symptoms arose on the evening of April 10th, and the fatal close took place on the night of the 14th.

This case well illustrates that Calabar bean is not to be relied on as an infallible agent in tetanus. The amount of the drug given was large, but the patient never at any time showed signs of being under its influence, nor were the pupils contracted. It is true that complete relaxation ensued near

the close of the disease; but there can be little doubt that the cause of death was sheer muscular exhaustion. There appears to be no specific for tetanus. Such means of treatment as amputating the limb that was originally injured, or stretching the sciatic nerve, proving generally ineffacious. Success may be occasionally looked for if the symptoms arise some considerable time after the infliction of the wound. Dr. B. Roemer* gives notes of 47 cases of which twenty were fatal. Dr. H. C. Wood, Jun.,† adds 13 cases of which 7 died. These together show a mortality of 27 out of 60 cases of traumatic tetanus. In acute tetanus our hope lies mainly in free stimulation. Tetanus appears to be a disease of exhaustion, though the violent spasms would seem to point to the opposite conclusion. Brandy freely given and stimulating diet may tide the patient over the period of the exhausting spasms, and then there may be hope of an ultimate recovery.

RETAINED PLACENTA.

By WILLIAM L. REID, M.D., F.F.P. and S.G.,
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(Read before the Glasgow Pathological and Clinical Society, 13th Feb., 1883.)

I BEG to lay before the Society two specimens of retained placenta, with the following notes of their histories:—Case I. 24th November, 1877.—Mrs. D., æt. 30, has had one child and a miscarriage within two years. Considers herself eight months' pregnant, and complains of energetic movement of child. I was asked to see her, because her size did not correspond to date of pregnancy. Five months ago, when eleven or twelve weeks pregnant, after exertion, she had a slight discharge of blood, coming and going irregularly for four or five weeks. She thought it a threatening of a miscarriage, and rested a good deal. Again, a month ago, she had a slight discharge of brownish water. There has never been any pain. Physical examination showed that there was no abdominal tumour corresponding to even a three months' pregnancy, but the uterus was retroverted and enlarged. The cervix was soft,

* *St. Louis Medical and Surgical Journal*, 1873, p. 367.

† *A Treatise on Therapeutics*, third edition, p. 319, foot-note.

somewhat shortened, and not tender. There was no disagreeable discharge. I gave the opinion that the fetus had died, but had not yet been cast off. Advised ergot and patience. 26th November.—Probably partly from the action of the ergot, and partly as the result of the manipulation during examination two days ago, a little pain came on to-day, and a half mummified, three to four months' placenta (specimen I), was extruded. There was no bleeding, but a little brownish watery fluid came away. There are remains of the cord. 30th December.—Was kept in bed for a week, had no further discharge, and involution has gone on rapidly. March 1879.—Has lately been delivered of a healthy child at the full time.

Case II. The specimen and notes in connection with this case were supplied to me by Dr. Johnston M'Fie, some weeks ago. Mrs. D., æt. 24, was married about five years ago. About seven months after marriage she had a premature child, which did not survive. A few months afterwards she had a miscarriage at the third month. This was followed by a healthy child, now nearly three years old, well grown and strong. She nursed this child until it was sixteen months old. More than a year ago she had a fever, and miscarried at the fourth month. She menstruated in March last, and during the next three months was sick in the morning, and felt herself increasing in size. In August she suffered from a discharge of blood, which continued irregularly for a month, at first of clots, afterwards of brown water. In the latter part of December Dr. M'Fie was called, and found that specimen II had been discharged with a little blood, and very little pain. This was evidently the placenta, very much softer and larger than that of even a four or five months' pregnancy, and in structure like a "hybrid" between a healthy placenta and one which had suffered from hydatiform degeneration. It was extremely friable, and much of it has not been preserved owing to this fact. There are distinct portions of the membranes, but nothing like the remains of an umbilical cord. Even although preserved for three weeks in strong spirit, it is still very easily torn.

In connection with the question of diagnosis and treatment of retained decidua, let me give shortly the details of a case at present under treatment.

On 25th November, last year, I was called to see a young married lady, who had a premature birth rather more than a year ago. She considered herself about three months' pregnant. The day before I saw her, after lifting a piece of

furniture, she had a considerable discharge of blood, and went to bed. This bleeding continued, with more or less bearing down pain, until I saw her. The cervix was found softened, and somewhat dilated, and the vagina filled with clotted blood. Opiates were given, but the discharge continued, with occasional fits of pain, for three or four days, when ergotine was thought necessary. The clots were carefully watched, but no trace of organised tissue was found. After being a fortnight in bed she was allowed to get up, and since that time has been going about freely, now and again having a little bearing down pain, and some brownish, but perfectly sweet discharge. The fundus is enlarged like that of a three months' pregnancy, but the cervix, although soft, is quite closed to the finger point. Let us suppose, what is likely, that this is a case where the foetus has been lost in the discharges, and the decidua retained.* How ought it, and cases such as those from which the two specimens I show you were obtained, to be treated? On consulting the works of obstetric authorities, we find that, as in matters theological, commentators disagree. It may be observed that the question of treatment is one of importance. Barnes (*Obstetric Operations*, 3rd ed., 477) remarks—"Women are apt to think lightly of a miscarriage; and many medical practitioners who have not seen the more severe cases countenance this error; and I have known not a few deaths from primary hæmorrhage and shock, not a few from septicæmia, some from inflammation, and I have seen many women who have, indeed, escaped with their lives, but only to suffer for years afterwards from anæmia and other disastrous consequences." This author recommends (p. 473) the immediate clearing out of the uterus as soon as one gives up hope of averting the abortion. "The sooner the ovum, or the remains of it, are voided, the sooner the patient will be out of danger. This, then, is the first indication. *Empty the Uterus.*" This is to be accomplished by the use of tents, and afterwards the finger points introduced to the fundus. Matthews Duncan does not specify any time for interference, but after mentioning the symptoms of imperfect deliverance, he says (*Researches in Obstetrics*, 289)—"For the cure, nothing is required but the complete evacuation of the offending structures from the interior of the uterus. This is effected by the

* In a week or two after the above was written, the discharge became somewhat offensive. Strong carbolic acid was twice introduced into the uterus, four days intervening between the applications. Some semi-solid brown matter was expelled; the discharge ceased, and ever since the patient has menstruated normally.

use of the sponge tent or tangle tent, the polypus forceps, and the double catheter injection apparatus." M'Lintock is a strong advocate of expectancy in such cases (Sinellie's *Midwifery*, vol. i, 176). "In by far the major proportion of these cases time and an expectant treatment will suffice to bring matters to a successful issue. The chief source of anxiety is hæmorrhage, and hence the management of the patient must be mainly directed with a view to ward off or restrain the loss of blood. It often happens in these cases that a very little artificial provocation is sufficient to excite expulsive action of the uterus, whereby the offending substance is at length got rid of, and the patient restored to health. I have sometimes known the simple digital and specular examination to have been followed by the discharge of the dead ovum; on other occasions the use of the sound has led to the same result, and again, in more cases, the use of the sound, and the subsequent administration of ergot of rye, have induced an amount of uterine contractions sufficient to expel the remains of the ovum." Leishman (*System of Midwifery*, 3rd ed., 433) admits the difficulty of deciding how long to wait, and when to interfere with such cases, and says—"Probably the most judicious method of treatment is, in all cases, to remove the retained structure at the time, if this can be easily affected; but if, on the other hand, there is a retained placenta and a rigid os, it is, on the whole, safer to wait for a time than at once to operate, provided the symptoms are not alarming. When, after an interval of hours or days, as the case may be, hæmorrhage recurs, with pains more or less distinct, indicating further separation of the placenta, and renewed uterine efforts, we must carefully observe the symptoms which are being developed, and manage the case accordingly." We may consider him also as an advocate for delay. A. R. Simpson (*Contributions to Obstetrics and Gynecology*, 105) recommends early removal by means of sponge tents and the fingers, with or without the volsella. Carl Braun of Vienna seems to favour waiting when there are no special symptoms, for he begins his description of treatment by saying—"On the advent of violent metrorrhagia or other dangerous symptoms, and where the cervix is permeable to the finger, the artificial loosening and removal of the ovum or its remains after abortion is the most rational and safest course." (*Lehrbuch der gesammten Gynecologie*, 2nd ed., 614). Playfair (*The Science and Practice of Midwifery*, 3rd ed., vol. i, 289) says—"Sometimes cases are met with in which the os has entirely closed, and in which we can only suspect the retention of the placenta by the

history of the case, the continuance of hæmorrhage, or the presence of a fœtid discharge. Should we see reason to suspect this, the os must be dilated with sponge or laminaria tents, and the uterine cavity thoroughly explored under chloroform." Burns, *Principles of Midwifery* (10th ed., 334) after saying that when the secundines are retained, ergot should be given, adds—"If we be disappointed, or the symptoms urgent, the finger must be introduced within the uterus, and the remains of the ovum slowly detached by very gentle motion. But we must be very careful not to endeavour to pull away the secundines until they be fully loosened, for we thus leave part behind, which sometimes gives a great deal of trouble; and further, if we rashly endeavour to extract, we irritate the uterus, and are apt to excite inflammation or a train of hysterical, and sometimes fatal symptoms. It is these two circumstances which make me careful in advising manual assistance, and fortunately the proportion of cases requiring it is not great in abortion at an early period." We may thus class this author with those who speak with an uncertain voice. Denman (*Introduction to the Practice of Midwifery*, 6th ed., 345) cannot be complained of on the score of indecision—"It has also been imagined that the safety of the patient very much depended upon the complete and speedy expulsion of the *placenta*; and when it was retained, very active deobstruent medicines, as they were called, were supposed to be necessary, and strenuously given for the purpose of expelling it, lest it should become putrid, and some of the putrified particles be absorbed into the constitution. I believe the whole of this supposition is groundless, having seen many instances of its being expelled in a very putrid state, at different periods of pregnancy, when the patient was in perfect health, and if she had any disease, the putridity of the *placenta* clearly seemed the consequence, not the cause of the disease. At all events, much less mischief may be expected from the retention of a putrid *placenta* at this period of pregnancy, than from attempts to force it away by the medicines usually given for that purpose, or by manual assistance." Churchill says (*Theory and Practice of Midwifery*, 4th ed., 173)—"But supposing that although by these means the hæmorrhage be arrested, yet that the ovum is retained without any evidence of irritative fever, are we to interfere for its removal? I think not. In such cases I give half drachm doses of ergot occasionally, watch the patient carefully, plug when necessary, and wait. After the lapse of days, or perhaps weeks, the ovum may be expelled in one or several masses, or

a change in the amount and character of the discharge will warrant us in concluding that the ovum is dissolving, and coming away. Longer experience has made me less fearful of leaving these cases to nature, and more unwilling to interfere hastily."

Not to take up time with further actual quotations, let me rank a few more names according to the views they take of this question of the treatment of imperfect deliverance. It may be remarked that the use of ergot is not included under the treatment called active.

For active interference are—Blundell (*Principles and Practice of Obstetric Medicine*, p. 254); N. H. Byford (*Theory and Practice of Obstetrics*, 2nd ed., p. 166); Hart and Barbour (*Manual of Gynecology*, p. 545); Symington Brown (*Clinical Handbook of Diseases of Women*, p. 162); Sir James Simpson (*Selected Obstetrical and Gynecological Works*, p. 97); Roberts (*Guide to the Practice of Midwifery*, 2nd ed., p. 143); and Edis (*Diseases of Women*, p. 468).

Against active interference are—John Ramsbotham (*Observations on Midwifery*, 2nd ed., p. 105); Francis Ramsbotham (*Principles and Practice of Obstetric Medicine and Surgery*, 4th ed., p. 700); King (*Manual of Obstetrics*, p. 101); Miller (*Principles and Practice of Obstetrics*, p. 200); Meigs (*Science and Art of Obstetrics*, 2nd ed., p. 250); Cazeaux (*Theoretical and Practical Treatise on Midwifery*, Thomas' Translation, p. 274); Velpeau (*Complete Treatise on Midwifery*, Meigs' Translation, 4th ed., p. 274); and Campbell (*Introduction to Midwifery*, 2nd ed., p. 655).

How is the ordinary practitioner to conduct his practice in these cases in view of such conflicting authoritative opinions? It seems to me that there are three different conditions in which retained decidual tissues are found—one, putrid; another, half mummified; and a third, fresh and very vascular. The first is found, I think, when the connection between the secundines and the uterus is completely broken; the second, when it is kept up only to such a limited extent as to keep the tissues barely alive; the third, when the vascular connection has hardly been injured at all. A view such as this supplies us with a clue to guide us in treatment. In the first case, where the placenta and membranes are quite cast off from the uterine surface, they rapidly decompose, and the diagnosis is readily made from the putrid nature of the discharge. The treatment ought to be the immediate washing out of the cavity of the organ with an antiseptic solution, and stimulating it to contraction by the introduction of a little

strong carbolic acid, on a Playfair's probe. This treatment should be kept up until the uterus is empty, and well contracted, and until all abnormal discharge has disappeared. In few such cases do I believe it would be found necessary to dilate with a tent, and clear out the uterus manually. In the second form, where there is still a little blood supply reaching the after-birth, there is no offensive discharge; there may be no incidental bleedings, or, if any, they are not considerable, and simulate menstrual periods. Sooner or later the uterus fails to keep up even this limited amount of nourishment, and recognizing its occupant as a cumbrer of the ground, quietly expels it, without much bleeding or pain. This is what is usually called molar pregnancy. The proper treatment of this form is to give ergot three times a day, in order to shut off the blood supply and cause its expulsion as soon as possible. If, after its complete separation, it be not soon expelled putridity sets in, and it is then necessary to dilate the cervix and remove it by means of the fingers.

The third form is that in which active growth of the retained tissues continues, the uterine circulation is stimulated, and abnormally rapid development takes place. This is illustrated by the second specimen I have shown to-night, and by what is called hydatiform degeneration of the ovum. There is almost always steady discharge from the womb after a certain period in the growth of this variety. Sometimes it is serum tinged with blood, containing shreds of organized tissue, or cysts, or it may be blood pure and simple. The treatment proper for this form is to empty the uterus manually, with antiseptic precautions, as soon as it is clearly recognized. The cervix is usually dilated, or dilatable. Ergot and strychnine should be given, chloroform administered, the one hand, after being dipped in carbolized oil, introduced into the uterus, and, aided by the other over the fundus externally, a thorough clearance effected. Antiseptic vaginal injections should be employed, and the use of ergot and strychnine kept up until permanent contraction takes place and all discharges cease.

CURRENT TOPICS.

THE GROCERS COMPANY'S PRIZE OF £1,000.—The subject of this prize has now been announced in the following terms:—

“To discover a method by which the Vaccine Contagium

may be cultivated apart from the animal body, in some medium or media not otherwise zymotic :—the method to be such that the Contagium may by means of it be multiplied to an indefinite extent in successive generations, and that the product after any number of such generations shall (so far as can within the time be tested) prove itself of identical potency with standard Vaccine Lymph."

The treatises are to be sent in on or before the 31st of September, 1886, and must be in English, although they may be translations of works in a foreign language.

We observe that one of the scholarships of this Company has been awarded to Dr. Matthew Hay, Assistant to Dr. Fraser Professor of Materia Medica in Edinburgh University.

At the meeting of the Glasgow and West of Scotland Branch of the British Medical Association, held on 29th June 1883, Dr. Newman gave a short account of four cases of movable kidney, 1 in male 3 in females. In one of these cases he performed the operation of nephroraphy with very satisfactory results. Previous to the operation the patient suffered severe renal pain on the right side, associated with persistent nausea and vomiting, so that she had not been out of bed for fully two years. After the operation the symptoms disappeared, she is able to take a considerable quantity of food, her general health has greatly improved, and she can now take moderate out-door exercise. In another case the patient suffered from the same symptoms as the one above described, and in addition symptoms referrible to strangulation of the right ureter, and persistent albuminuria. The urine contained a small quantity of albumen and granular and hyaline tube casts. While the patient was under observation, the right kidney diminished considerably in size, so that the question was raised whether or not the albuminuria was due to disease of the movable kidney alone. The only method of determining this with accuracy seemed to be to procure separate samples of urine from each kidney. This was done by introducing a small electric light into the bladder along with a speculum. The orifices of the ureters were thus easily seen, and two catheters being introduced, one into each ureter, the urine was allowed to flow into separate vessels, and afterwards examined chemically and microscopically. The result of this examination was to show that both kidneys were in a diseased state, and therefore an operation was not considered advisable. Both the cases described were in females.

REVIEWS.

- 1 *System of Surgery, Theoretical and Practical*, in treatises by various authors. Edited by T. HOLMES, M.A. (Cantab.), and J. W. HULKE, F.R.S. Third edition; in three volumes, with illustrations. London: Longmans, Green & Co. 1883.
(*First Notice.*)

THIS edition, though really considerably enlarged, is presented in much smaller compass than the last, five volumes having been compressed into three, of about 1,000 pp. each, with a view to lessening the price of the work. The gain in cheapness is considerable and acceptable; but, though the type is good, the smaller print on the cheaper paper is not so easily read, and the larger pages tire the eyes. The binding is not so substantial as might be wished for books of considerable size, subject to frequent handling, but here also something has evidently been intentionally sacrificed.

As indicated, there is actually more matter in these three volumes than there was in the five of the last edition. One essay, that on Hospitals, has been omitted, and "the matter of that on surgical instruments has been distributed amongst the other articles;" but nearly all of the articles have been extended during the process of revision, and many woodcuts have, with advantage, been introduced. There are also some full page plates—four showing the microscopic characters of scrofulous tissues; two coloured, of ophthalmoscopic appearances; and three, also coloured, illustrating the article on Venereal Diseases. These latter are, as usual, with medical chromo-lithographs, very "telling" from decided colouring, and very conventional rendering of flesh tints.

The greater part of the first volume is devoted to general surgical pathology, and comprises the following articles:—Inflammation; Pathology of Inflammation; Abscess; Sinus and Fistula; Gangrene; Ulcers; Erysipelas; Pyæmia; Hectic and Traumatic Fever, and Treatment of Cases after Operation; Tetanus; Delirium Tremens; Scrofula; Hysteria; Tumours; Contusions; Wounds; Animal Poisons; Wounds of Vessels; and Collapse. Probably the best article here, and perhaps in the whole book, is that on Pathology of Inflammation, by Dr. Burdon Sanderson; it is very complete, giving lucid descriptions of all the most important series of experiments bearing on the subject, and concludes with a most useful bibliographical list from 1871 to 1881, inclusive. Dr. Burdon Sanderson

defines inflammation as "the succession of changes which occurs in a living tissue when it is injured, provided that the injury is not of such a degree as at once to destroy its structure and vitality." This definition, an aetiological one, he prefers to the classic semeiological one so generally adopted since the time of Celsus, as indicating more correctly that "inflammation is a process, not a state;" but it is in no sense descriptive, and in that respect is defective. By those who already know what the "succession of changes" is, the definition will at once be accepted as both definite and comprehensive; but to a junior student, it would convey no notion of what the succession consists in. Nothing, however, can be more admirable than Dr. Burdon Sanderson's expositions of the changes and of their causations. He classifies inflammations, "according to their mode of origin, into primary and secondary. The first term is applicable to all those cases in which the local process is the direct result of the operation of a noxa on the organ or tissues in which the inflammation has its seat. The second includes the important class of infective or secondary inflammations, . . . defined as dependent on the introduction, from a part previously inflamed, of an infective particle or particles into the circulating blood, and its lodgment in the capillary blood-vessels of the part secondarily infected." (P. 66.) Under the heading of Proximate Causes of Traumatic Inflammation, he says (p. 83)—"It is now regarded as certain by pathologists, that minute organisms are concerned in all the more serious pathological effects of injuries. With reference to the mode and degree of their interference, three propositions may be referred to as embodying the conclusions arrived at by different observers and thinkers—viz. (1.) That when inflammation of a living part is determined by an injury, the injury acts only as a predisposing cause—the proximate cause is the presence of organisms. (2.) Inflammation may be produced without the concurrence of organisms; but in this case, the process is neither progressive nor infective—that is, it neither tends to spread to contiguous parts beyond the area of injury, nor to infect distant parts by the circulation. (3.) The organisms which produce these results exist constantly in surrounding media." After describing and discussing the experiments and observations of Hueter, Hallbauer, Chauveau, Koch, and Ogston, he comes to the conclusion that "for the propositions (1) and (2), there are good reasons which deserve the most serious consideration"; but, (3), known as the "atmospheric germ theory," he thinks "rests on much more slender foundation." Special, though perhaps common, conditions are required

to "enable the air to act as if it were charged with poison;" and, as shown by Wegner's experiments on the peritoneum, the conditions consist in the presence of dead or putrescible fluid or tissue in contact with living tissue, but accessible to atmospheric germs, and the continuation of that contact for a certain time after the process of putrefaction has been initiated by these germs. The phenomena of infective periostitis and ulcerative endocarditis, again, he thinks, can only be explained by the theory "that the micrococci or their germs are always or usually present in the organism; that in normal tissues they find no subsistence and disappear, but that spoilt tissue not only affords them harbour and lodgment, but the opportunity of exercising their special function or endowment—viz., the exciting of septic changes." Why these changes should be excited in some cases only "is just as undetermined as if micrococci had never existed." "What we know about them (micrococci) pathologically, may be thus summed up. That they are undoubtedly associated inseparably with the propagation of distinctive inflammation by dissemination; that, whether they borrow their virulence from the medium in which they live, or acquire it by a process of gradual adaptation (that is, by virtue of reciprocal action of organism and environment on each other), it is not to their inherited properties, but to the circumstances under which they have vegetated, that they owe their unquestionable pathological importance." (P. 96).

It is very interesting to compare Dr. Sanderson's article with Mr. Simon's (on Inflammation), which stands nearly as he wrote it in 1860, with only the vaguest references to "ferments," and with his note to that article, written in 1870, where he points out the suggestiveness of certain (then) recent experiments on the habits of "supposed *noso-fungi*."

Perhaps the question in the domain of pathology that is at present most attractive concerns the relationship of micro-organisms to disease. Any one, however, wishing to "read up" this subject in the "System" will obtain but an imperfect idea of the extent to which it has been wrought out experimentally, and not much aid in the way of detailed references to the literature of the subject. Whether or not this subject is worthy of a special article was for the editor to decide on various grounds; but in a work of this kind the writers of many of the articles, as they stand, might have made their articles much more valuable by giving references much less general. Many of the views at present under discussion may not bear the test of more extended observation or fuller

experience; but the state of the question, as it is at present, might have been much more distinctly indicated. The "germ theory," as a general principle, is certainly fairly stated in more than one of the essays—*e. g.*, in Mr. Holmes', on Inflammation (Treatment), vol. I, p. 41, in Dr. Sanderson's, referred to above, and in Mr. Croft's, on Antiseptics, vol. I, p. 317; but very little detail is given where more specific affections are concerned. In fact, the idea of specificity with regard to micro-organisms is very imperfectly indicated, or even denied, as in the above quotation from Dr. Sanderson. In the articles on Erysipelas, Hydrophobia, and Anthrax, the question is little more than alluded to; in Mr. Treves', on Scrofula, it receives but scant attention, Koch's discovery having only a foot note of two lines devoted to it; in those on Lupus (by Paget, under Ulcers, and by Jenner, under Skin Diseases), and in those on Leprosy, Syphilis, Gonorrhœa, and Diphtheria, it is not mentioned at all. In the article on Abscess, Koch's observations are given; but Ogston's are not, though they are mentioned in Dr. Sanderson's article. Similarly the defect in the articles on Scrofula, and on Scrofulous Disease of Bone, will be found well atoned for by Mr. Barker, in his article on Caries of the Spine.

Closely associated with this pathological question is the therapeutic one of antiseptic dressings, and to this subject we think full justice has not been done. The successful employment of the Listerian method depends wholly upon strict attention to matters of detail, but details here are mostly conspicuously wanting. The influence of Mr. Holmes' opinions can be plainly traced in many places. In "Inflammation—treatment" he states and criticizes the theory fairly enough from his point of view; but in "Excision of Joints" he dismisses the subject very curtly. Over the great battle ground of Listerism—namely, Operations upon the Abdomen, Mr. J. Hutchinson, in his article on Surgical Diseases of Women (vol. iii), gives but a hurried glance, concluding his remarks as follows:—"If we put aside the extra-peritoneal method with the pedicle and the carbolic spray during the operation, neither of them having maintained a permanent position as improvements, we may, I think, briefly mention the following as having been the most important in conducing to the results which we have witnessed. The first is the fact that ovariectomy has, to a large extent, fallen into the hands of specialists, whose skill and knowledge have become developed by constant practice. It may be doubted whether the statistics of ovariectomy at the present time, at general hospitals or in the hands of those who do the operation only very occasionally, is much better than it was in

the days of Walne, Frederick Bird, and Baker Brown. Secondly, surgeons have learned to do the operation deliberately, and that prolonged exposure of the peritonæum is not a matter of any consequence as compared with the risk which results from having either blood or cyst fluid in the abdominal cavity. Thirdly, it has been made quite certain that the peritonæum does not resent the presence of ligatures cut short and left within its cavity. This applies not only to ligatures on the pedicle, but to those used to prevent hæmorrhage from torn adhesions, and we now most scrupulously tie every bleeding point and cut the ligatures short. Fourthly, we may cite, as minor matters which have been occasionally useful, the employment of glass drainage tubes passed down into Douglas's pouch, and the use of the ice-cap in cases of unusual pyrexia. Undoubtedly the most important of what we have mentioned are the practices which are summed up in the expression, 'Toilet of the Peritonæum'" (p. 417). For all this, he does not "think that the use of Listerian precautions can be safely neglected by those who operate in general hospitals."

The special article on Antiseptic Dressings in this edition is placed at the end of the article on Wounds instead of that on Amputations, but that has given it into the hands of Mr. Croft instead of Prof. Lister's. Mr. Croft's article is very sketchy and sadly lacking in details, and Mr. Jacobson's descriptions in his article on Compound Fracture (I, p. 431) will be found much more useful. In the articles on Herniotomy, and Penetrating Wounds of the Abdomen, no hint of any special value of antiseptics is given, and in that on Gun-shot Wounds, though the antiseptic system is recommended in general terms for adoption as far as possible in military surgery, no information is given as to the various modifications of detail which have been suggested to make it possible during active service. Of the more recent antiseptics, iodoform is the only one that receives attention; its use in cases of compound fracture, abscess, and in operations about the mouth is fully described, and its special advantages as an antiseptic are stated by Mr. Croft; but we find nothing about its use in cases of gonorrhœa, suppurating chancre, or phagedænic ulcer, though it is as useful and as antiseptic in its action in these cases as in any of the others mentioned.

The second part of the first volume is occupied with a series of articles on special injuries of various parts of the body, which are full and satisfactory. A strong point of excellence in the work, as a whole, is the fulness and practical usefulness of the articles on what are often called "specialties"—*e.g.*,

affections of the eye, of the ear, of the larynx, &c., which greatly enhance its value as a work of reference for general practitioners.

Some of the more interesting of the articles in the second and third volumes we propose to refer to in a future notice. In the present notice we have referred to what we consider to be defects; but the work is already well known as a valuable one, and its value increases with each edition. It does great credit to the editors and to the writers of the various articles.

Vorlesungen über allgemeine Pathologie: Ein Handbuch für Aerzte und Studirende. Von DR. JULIUS COHNHEIM, Zweite neu bearbeitete Auflage. Zwei Bände. Berlin: August Hirschwald. 1882.

Lehrbuch der Pathologischen Anatomie. Von DR. F. V. BIRCH-HIRSCHFELD, Zweite völlig umgearbeitete Auflage. Erster Band. Allgemeiner Theil, mit 118 Abbildungen im Text. Leipzig: F. C. W. Vogel. 1882.

A Text-book of Pathological Anatomy and Pathogenesis. By ERNST ZIEGLER. Translated and edited for English Students by DONALD MACALISTER, M.A., M.B. Part I. General Pathological Anatomy. London: Macmillan & Co. 1883.

THE publication of these three works on Pathology and Pathological Anatomy within a short period, shows that this subject is, in Germany, being pursued with unusual vigour. We have in the first place a second edition of Cohnheim's well known lectures on General Pathology in two bulky volumes. Then we have the first or general part of the second edition of Birch-Hirschfeld's work on Pathological Anatomy. We have lastly an English translation of the first part of Ziegler's *Text-book of Pathological Anatomy*, a work which has in the original German reached a second edition, while only a half or a third of the first edition has been published.

It may be of some interest to our readers to trace in a discursive manner the development of these subjects as exhibited in the principal manuals of Pathology and Pathological Anatomy, which have been issued in Germany during the last 40 years. The modifications in scope and style which these manuals have undergone exhibit in an interesting fashion the advance of this science during these years.

Taking first the subject of Pathological Anatomy, we find

that the principal manuals are Rokitansky's *Handbuch* (Manual), published in three volumes, from 1842 to 1846, and his *Lehrbuch* (Text-book) from 1855 till 1861. Then follow Förster's *Handbuch* in 1854 and 1855; Rindfleisch's *Lehrbuch* in 1867-69; Klebs' *Handbuch* from 1868 till 1878; Birch-Hirschfeld's *Lehrbuch* in 1876, and the second edition in 1882; and Ziegler's *Lehrbuch* in 1881, and the second edition in 1882, the latter two being still incomplete.

Pathological Anatomy is a comparatively modern science, and we are still almost within sight of the earliest systematic treatises on it. The first of these was Morgagni's *De Sedibus et Causis Morborum per Anatomen Indagatis*, published in 1761. In this, and in the works by Meckel (1804), Otto (1814), and others, in the earlier years of this century, the subject was treated on the lines of normal anatomy. The naked eye appearances of the various morbid structures were compared with those of the normal, and differences noted. These were chiefly differences in size, form, colour, consistence, position. This method was still followed by Rokitansky in his *Handbuch* published in 1842-46, the contents of the first volume showing a division into anomalies of number, size, form, position, connection, colour, consistence, continuity, texture, and contents. Even at the time of issue of this work the importance of histology had begun to assert itself, and these older divisions began to be found insufficient in view of the facts revealed as to the changes in the finer details of structure. Rokitansky evidently felt the influence of this change, and hence delayed the publication of a new edition of his book for a number of years. The last part of his *Handbuch* was published in 1846, the book having already reached a second edition before it was completed; and it was 1855 before he issued what he calls a third edition. So great is the change, however, which the work has undergone, that although he calls it a third edition, he gives it a new name—*Lehrbuch* instead of *Handbuch*.

An interesting episode in the history of these books is that of their translation into English. The translation of the *Handbuch* was undertaken under the auspices of the New Sydenham Society, and the first part of it (the second volume of the work) was issued in 1849. This was followed in 1850 and 1852 by the third and fourth volumes. The first volume was not issued till 1854, and the translator, Dr. Swaine, explains, somewhat plaintively, that the long delay in issuing this volume was due to "the apparently well founded hope," in which they were encouraged by the author, that a new and

revised edition, containing the histological portion, would be shortly issued. It was most unfortunate for the success of the Sydenham Society translation that the publication of the new edition followed that of the translation in a month. The translator's preface is dated York, January 1855. The author's preface to the *Lehrbuch* is dated Vienna, February 1855.

In this new edition, with its new name and new histology, and 226 histological woodcuts, the old arrangement is still retained. We have the anomalies of number, size, form, &c., but the author thinks it necessary in his preface to make something like an apology for this, explaining that, for clinical purposes, such an arrangement has its advantages.

In spite of this similarity in arrangement, the difference in the two books is very striking. Those who have attempted to read the translation, or who have referred to it, will have found it very stiff and dry reading, with its mass of rather heterogeneous facts. On the other hand, the *Lehrbuch* reads quite like a modern work, and it is astonishing how little is the difference in the description of the morbid histology of the tissues, in the more recent text-books, from that given here. One can see, at least, that Rokitansky, in this work, has, with the hand of a master, laid the foundation on which all subsequent systematic treatises have been built.

In the year 1854 appeared the second volume of Förster's *Handbuch der Pathologischen Anatomie*, and the first volume followed in 1855. In this work the author breaks away from the former arrangement, and boldly arranges his contents according to the actual pathological conditions. The great divisions of the general part of the book are Malformations, Parasites, Affections of the Circulation, Inflammation, New Formation and Degeneration, Tumours, and these are the headings, under which the subject is treated of in the most recent works. In the detailed treatment of the subject, Förster dwells mainly on the histological structure, and in his preface he says that his book is essentially a manual of pathological histology. Even till the present day this book of Förster's is invaluable for reference, and for the encyclopædic fulness of its contents it excels anything that has been hitherto produced.

The next work to be noticed is Rindfleisch's *Text-book of Pathological Histology*, translated by the Sydenham Society. This book was calculated to give a great stimulus to the study of pathology, as it contained in every page evidence of the activity of an original mind. It does not aim at being a full treatise on the subject, and has, therefore, less permanent value.

Of Klebs' *Handbuch der Pathologischen Anatomie*, it is difficult to speak without some degree of national prejudice. It rather offends the British sense of fitness to have a book dribbling out in "Lieferungen" over a period of ten years, and one gets somewhat confused among the divisions of volumes I and II, especially on finding that the first volume is paged consecutively up to 1,254 pages, while some of the parts of the second volume are paged separately, being written by different authors. In spite of very crabbed German, bad paper, and very poor woodcuts, this book is one of very great value. It is a very full and complete statement of the details of the pathological anatomy of the various organs, and represents an immense amount of original work.

Birch-Hirschfeld's original edition, published in 1876, furnished a very full and well written account of the whole domain of pathological anatomy. In this work became prominently visible for the first time a tendency to widen out beyond the boundaries of mere pathological anatomy. In the discussion of such subjects as parasitic micro-organisms, the discoveries of experimental pathology, and the bearing of these on the origin of diseases are entered upon, and so the discussion steps into the domain of general pathology. This rendered the work very voluminous for a text-book, and it was not completed till over 1,200 closely printed pages had been issued. This tendency is still more strikingly shown in the second edition, whose preface bears date October 1882. This edition has only extended as yet to the first or general part of the book, and here there is no attempt to keep outside the domain of general pathology. The author says in his preface, "The subject of pathological anatomy is taken up in the wider sense, and in particular, a necessary amount of attention is yielded to experimental pathology, which has recently taken in hand with such satisfactory results important questions of *Pathogenesis*." It will be seen that, with this end in view, the work passes far from the dry bones of changes in colour, consistence, number, size, &c., and we are not surprised to find in the table of contents evidence that general pathology is almost as much included, at least in this general part, as pathological anatomy. Under Inflammation, for instance, we have such items as "Causes of Inflammation," "The Processes in the Blood-Vessels," "Genesis of the Inflammatory Changes," &c. The subject is growing out of the condition of mere accumulation of facts and entering on the interesting stage of a mature articulated science.

The first edition of Birch-Hirschfeld gave us much satisfac-

tion in frequent references which we made to it. The second edition presents certain obvious improvements. It adds greatly to the value of the book that it is illustrated, not as in the first edition by rather confused lithographs at the end, but by woodcuts in the text. These cuts are very artistically executed and on the whole true to nature, bearing out the statement in the preface that they are the work of young artists from actual preparations. It is quite clear, however, that the artists did not use the camera lucida in their drawing, otherwise the sizes of the objects would have corresponded more closely with the magnifying powers given. It appears as if the object had been placed under lenses which magnify say 350 diameters, but the artist was left to fix his own scale of size and to draw the objects of any size he chose. In figure 8, for instance, we have the air vesicles of the lung of an average diameter of half-an-inch, the magnifying power being 200 diameters, which would give an average actual diameter of $\frac{1}{100}$ of an inch. The actual average diameter of the air vesicles is the $\frac{1}{100}$ of an inch. These cuts have this advantage that the mode of preparation of the specimens is given in each case. Altogether we would say that any one requiring a trustworthy book not only for student purposes but to serve in after life, will find this an excellent one. The literature of the various subjects is also given with considerable fulness.

Ziegler's book marks even in its title the extension of domain which we have noticed as visible in recent books on pathological anatomy, it is called a Text-book of Pathological Anatomy and Pathogenesis. The author in the preface to the first edition observes that it was his original intention to bring out a new edition of Förster's text-book. He found, however, that this would require a complete re-modelling of the whole of that work, and he preferred to write a book of his own. The result is a book of very different character to Förster's but one of perhaps equal merit in its own line. The book is eminently a student's one, a rare thing in Germany, and its great success there indicates that it has met the student's case. It does not presume to be a full and complete account of the subject, Birch-Hirschfeld being, in this respect, more entitled to rank as the successor of Förster than Ziegler is. The page of the latter does not contain much more than half of that of Birch-Hirschfeld, and with clear type and wider lines it is much pleasanter reading. The woodcuts also are much more diagrammatic, in some cases going to excess in this direction. The work gives a sufficiently complete account for ordinary readers of the details of pathology, and in its

style and scope forms an excellent introduction to the subject.

It is well known that the first part of this book has been placed before English readers in a translation by Dr. D. Macalister. There is no question that the work of translation has been excellently done, and there is every likelihood that the work will be successful with the English student as it has been with the German.

In what has gone before it has been indicated how the various works on pathological anatomy have of late years presented a tendency to extend beyond the scope of mere anatomy, and to take in the processes of disease as manifested in the living animal. It is true that theoretically the changes in the tissues are held to be the fundamental subject of study, but in the actual working out of the subject it will be found that this is by no means rigidly kept in view. In the German schools there are courses on general pathology distinct from those on pathological anatomy, and there are text-books on general pathology, the latest of which, that of Cohnheim, is mentioned at the head of this article. We have to enquire now what is the scope of this subject of general pathology and what its connection with pathological anatomy? As the latter subject has been somewhat extending its boundaries we shall find that the former has to a certain extent shifted its position.

On consulting Uhle and Wagner's *Manual of General Pathology* (first edition, 1862; fifth edition, 1871), we find the following definition in the opening sentence of the introduction:—"Pathology is the study of disease; general pathology is the study of the diseased condition (*Kranksein*), and of disease in general. Special pathology is the study of the individual diseases." When we consult the table of contents we find that the subject matter of this book is not very different from that of the general parts of the works on pathological anatomy. There are, indeed, chapters on General Nosology and General Etiology, but these occupy only 100 pages, and the remaining 600 are devoted almost entirely to pathological anatomy.

When we turn, however, to Cohnheim's celebrated *Lectures on General Pathology* (first edition, 1877-1880; second edition, 1882), we find that both the definition and the scope of the work have undergone a marked change. As pathological anatomy has been enlarging its domain so as to include etiology and pathogenesis, general pathology has been relegated to a more special field. In his introduction, Cohnheim

defines disease as a "departure from the regular—that is the healthy vital process." He points out that throughout life there are external circumstances continually interfering or tending to interfere with the normal functions. The healthy body has the power of meeting these adverse circumstances, a great part of its activity is expended in such actions as the preservation of the normal temperature, the retention of the proper amount of water in the blood, the elimination of useless or deleterious substances, &c. There are thus regulating arrangements present in the body for the purpose of meeting and overcoming adverse external circumstances; and we speak of disease, when, "in regard to one or more of the circumstances of life the regulating arrangements are no longer capable of carrying out the various vital processes without some disturbance." It follows from this that the causes of disease are the circumstances of life, and that they lie outside the organism. The function of general pathology is to consider what are the external circumstances which induce these changes in the vital processes, and how the vital processes conduct themselves under the altered circumstances. In this way, general pathology is divisible into two great subjects—namely, general etiology and pathological physiology. The present work confines itself almost entirely to the latter, the object being to describe the various functions of the body under the circumstances of disease.

From what has gone before, it will be seen that this book might well have received the title of pathological physiology. It has essentially a physiological basis, and the work is divided according to the functions of the body. We have the Pathology of the Circulation, of Nutrition, of Digestion, of Respiration, of the Urinary Apparatus, of the Animal Temperature. The pathology of the nervous system and of generation are wanting, there being, apparently, as yet, no proper material for a general exposition of these. In carrying out his work, the author depends, in great measure, on the results of experiments, and the great development of late years in the department of experimental pathology, a development largely associated with the name of the author, has afforded a rich basis of material for the work. It is pointed out that if in physiology experiment is of paramount importance, it is even more so in pathology. The normal functions may be studied in healthy persons, who are always to be had. But the phenomena of disease come before us, as it were, by accident, and, unless by the aid of experiment, it may be impossible to determine the actual nature of the phenomena which are occurring.

A work such as this presumes some knowledge of pathological anatomy, just as a work on normal physiology presumes some knowledge of normal anatomy; but given such knowledge the book can hardly fail to be read with great interest. It gathers up the facts of pathological anatomy and shows their bearing on the vital processes. It takes the diseased organism and shows how the various functions are carried on in it, and thus affords the needed link between the dead and the living. There necessarily fall to be discussed in it many matters connected with clinical medicine with which the pathologist is not generally supposed to have much to do, but which are capable of being illustrated and explained by a general consideration of the functions under discussion.

It may seem doubtful whether this book is properly designated as one on general pathology, but there can be no question that it takes up a department of the utmost importance in the domain of medical science. It may be added that the work has been done with very great skill. The author explains that he has thrown his work into the form of lectures, because this form affords the greatest degree of freedom in dealing with a subject which is not equally wrought out in all its departments, and hence does not admit of perfectly systematic treatment. There is another advantage which he does not mention—namely, that the form of lectures encourages a freer literary style than does a systematic treatise. We have here an eminently readable book, with much less of the difficult construction to which we are accustomed in German scientific works. In this respect it bears comparison with Virchow's *Lectures on Tumours*, which also are exceedingly readable, although, like the present, very full of facts and references.

The Systematic Treatment of Nerve Prostration and Hysteria.

By W. S. PLAYFAIR, M.D., F.R.C.P. London: Smith, Elder & Co. 1883.

DR. PLAYFAIR'S book consists of a reprint of two papers in the *Lancet*, and his address at the meeting of the British Medical Association at Worcester on 9th August, 1882. To these are added, under the form of appendices, a note on massage, a receipt for raw beef tea, and a note on cases associated with excessive fatness.

Dr. Playfair has been induced to issue this reprint in con-

sequence of the numerous inquiries which he has received concerning the Weir Mitchell method; but it is to be doubted whether his book in its present form will give any satisfactory answer. The individual papers, so far as they go, are beyond criticism. Collected and bound, much of their individual worth is lost by reason of the frequent and almost verbal repetition. A small handy book, consisting of the crude material, with such additions as Dr. Playfair saw fit to make, would have been much more acceptable.

We have said that the papers, so far as they went, were beyond criticism. They detail a system of treatment applied to particular selected cases, and they state results. It is important testimony to the usefulness of the system to say that each and all of its parts had been found of service in the treatment of hysteria before Weir Mitchell combined them and Playfair saw that the combination was good, and called it a system.

What is worth doing is worth doing well. Such is the keynote. If a case is bad enough to be secluded, massage, diet and electricity are small inconveniences, and powerful adjuncts to treatment. Upon perfect seclusion hangs the first, and we think the main chord. It removes the extrinsic exciting causes of hysteria, and brings the patient face to face with her own condition. Closely following upon this is enforced rest in bed—discipline. Not that the patient may not have been weeks, months, or years previously in bed, that was choice—this is prescribed. The systematic feeding still carries out the idea of discipline, but with something added. It is not feeding the appetite, but feeding the tissues, and the massage ensures that the value of the food shall be taken out in muscular work.

Probably the electricity is the least essential part of the treatment, and it is difficult to see in what it excels massage. If it be true that in hysteria there is an undue irritability—a tendency to premature running down at the nerve centres, then, perhaps, the interrupted current may exhaust the centre and for the time do good; but the advantage of this is open to doubt. It would seem more advisable to exhaust the centre by massage or nerve vibration than by the addition of a powerful exciting force. Such is a résumé of the treatment. Underlying the mere detail of procedure, two principles are evident—1st, a suspension of the entire former life and surroundings; 2nd, re-education—physical and moral.

Nothing could be more desirable than this programme. To such patients as the systematic treatment benefits, the happiness to be derived from “stupidity and a sound digestion” is

unattainable, and "only with renunciation," "life, properly speaking, can be said to begin."

But the physical and metaphysical conditions which underlie grave cases of neurasthenia are by no means confined to the realms of disease. Every day life teaches the lesson of renunciation and re-education; less grave forms of hysteria teach it in a fuller degree. In such an association, the value of the adventitious aids becomes a matter of serious importance. The question of food stuff, and particularly of the use of alcoholic stimulant, in what may be called the explosive diseases of the nervous system, is hardly less important than the use of the all potent bromide. Dr. Playfair's observations raise this question very distinctly; but when we seek an answer we find the red meats, and even Burgundy, in moderate quantity, prescribed without comment.

Dr. Playfair has certainly done much; for what he has done the profession and many patients must be grateful. When he again writes, we ask that he should give us further information which would point to the utilization of the method, or some modification of it, in other than extreme cases. Dr. Playfair's experience, by reason of his advocacy of the system, must be greater than that of most men; and from him we may fairly expect an estimate of the comparative value of its component parts, and an indication of how and when to modify the ingredients of the complex prescription.

REPORTS OF HOSPITAL AND PRIVATE PRACTICE.

GLASGOW HOSPITAL FOR SICK CHILDREN.

DR. FINLAYSON'S CLINIQUE.

SINCE the opening of the Hospital several children have been admitted with various forms of phthisical and tubercular disease, and a comparison of the symptoms, especially as regards the febrile course of the disease, may be interesting. Thus, in the case of a little girl nearly four years old, sent to the Hospital by an officer of the Charity Organisation Society

who found her in a neglected state, we had to deal with an ordinary case of pulmonary phthisis, associated with cavities and, judging from a persistent and intractable diarrhoea, there was probably also intestinal ulceration; she was in the ward from February 19th till April 3rd when she died, wasted and worn to an extreme degree. Although no *post-mortem* examination could be obtained, the physical signs clearly indicated the presence of cavities. The fever was persistently maintained during the whole of her residence in hospital, but it was throughout of the remitting type. This is shown very plainly in the short specimen selected for the diagram (Fig. 1)



FIG. 1.

Diagram giving a specimen of the daily variations of temperature from observations taken every two hours, showing the rapid development of the pyrexia in the afternoon, with great remissions in the course of the early morning. During this period the pulse varied from 136 to 160 per minute, and the respirations usually numbered 40 to 48.

where careful observations in the rectum were made frequently during the 24 hours, and although the frequency of the observations was diminished, the course of the fever was traced to the end, and was found to maintain the same character except at the very close, when a striking reduction occurred 24 hours before death. The daily paroxysms and remissions gave a range of temperature extending frequently to 5° or 6° F., and the greatest heights were usually attained in the course of the afternoon or early part of the evening, and the temperature had usually begun to fall distinctly before midnight and attained its minimum about 4 hours later.

Very different from the remitting course just described was the case of a boy of 11 years, who was sent in to the hospital by Dr. Granger on March 14th, affected with acute miliary tuberculosis. This boy's case presented the characters of a continued fever. He was said to have been ill three weeks: the physical signs were chiefly those of bronchial irritation, with generalised wheezing and moist râles; some dulness was detected also at the left apex: he was at times highly delirious, and when vomiting occurred on March 20th it was thought likely that meningitis was coming on; but these symptoms were not further developed, and the patient died early next day. When admitted it was hoped that the disease might prove to be a pneumonia of the left apex, with the high febrile and nervous symptoms often found in this form of the disease, aggravated and complicated by a general bronchitis; but as the case developed, and as no evidence of typhoid fever could

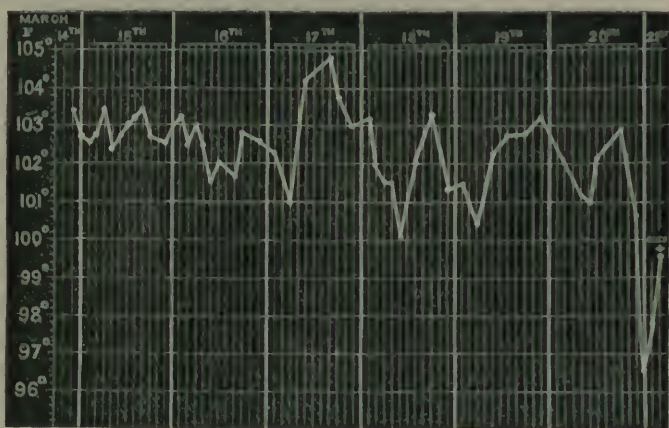


FIG. 2.

Diagram of the temperature in acute miliary tuberculosis, showing the presence of a continuous pyrexia up till the terminal depression just before death. During this period the pulse rate varied from 132 to 164 per minute, the higher figures occurring in the evening: the respirations varied from 44 to 60, till shortly before death when they numbered 76.

be obtained, the diagnosis of acute tuberculosis was arrived at, mainly on the ground of the course of the temperature, and of the duskiness of the complexion, pronounced from the beginning, but becoming developed as a more extreme lividity before the fatal termination.

The diagram (Fig. 2.) shows the course of the temperature,

taken at frequent intervals; it presents an almost complete absence of the remissions seen in the other case, except, indeed, the terminal remission which led up to death: the rallying of the temperature after the profound collapse (96.6° F.) is not unfrequently noticed just before death, and as the figures given are the records of observations in the rectum, reliance can be placed on their correctness.

The *post-mortem* examination was made by Dr. Joseph Coats, nine hours after death: it revealed the most extreme dissemination of miliary tubercles: the heart, lungs, spleen, liver, kidneys being affected, and even one or two white nodules were found in the brain at the fissure of Sylvius. No caseous matter was found anywhere, the mesenteric glands were enlarged, but they seemed to have no connection with a curious cystic swelling containing grumous brown fluid, situated in front of the vertebræ and to the left side, just at the level of the pelvis of the kidney. Portions of the organs, put at once into spirit, were examined very carefully by Dr. Coats for bacilli without success.

The next case presented a combination of phthisis and tuberculosis, the tuberculosis, however, not being nearly so extensive or acute as in the last case, but constituting rather a complication in a more chronic illness. This boy was $6\frac{1}{2}$ years old. He was sent in by Dr. Wm. Stewart from Anderson's College Dispensary on March 14th. The case had, on admission, the characters of a catarrhal pneumonia of the right side, and as he was said to have been ill only for five weeks, and as no family history of phthisis was obtainable, some hope of its being of a simple character was entertained at first, although his aspect was very suggestive of a delicacy of the constitution. The feverishness, however, persisted in spite of every care; it presented a striking instance of the remitting type (see fig. 3), and after a little time the diagnosis of phthisis was rendered only too certain. Latterly the child became notably livid, and this increased just before death on May 23rd. There was only on two or three days slight looseness of the bowels, latterly, indeed, there was rather constipation.

The inspection, made by Dr. Joseph Coats, 23 hours after death, showed both lungs to be affected with firm fibrinous adhesions, and on the pleural surfaces multitudes of tubercles were found. The right lung was much more condensed than the left, although both were affected, and numerous cavities of small size were found in the right lung. The branches of the pulmonary artery were affected with thrombosis, particularly

in the left lung, and this even extended to some of the larger branches. The heart presented considerable dilatation of the right ventricle, the tricuspid orifice admitted two fingers, and the mitral one finger; a considerable number of small globular thrombi were found in the right ventricle.

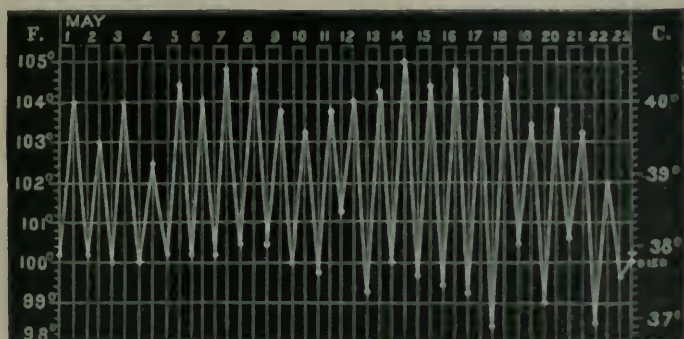


FIG. 3.

Diagram showing the daily range of temperature: observations were made 6 times in the 24 hours, and the maximum and minimum temperatures have been recorded on the diagram; the minimum always occurred in the morning, usually about 6 a. m., and the maximum always in the afternoon, sometimes as early as two, usually about four or six, and occasionally somewhat later.

The pulse varied from 136 to 148, and the respirations from 44 to 60.

The bronchial glands were much enlarged and caseous: one of them presented a cavity, the result of softening. The spleen, liver, and kidneys presented numerous tubercles, and the small intestine had a number of crater-shaped ulcers. The brain was normal.

The last case was that of a little girl 4 years old. On admission she did not seem very ill: she was said to have had a cold for two months, but she was not wasted, and physical examination merely revealed signs of bronchitis with only very slight feverishness. Eight days after admission—viz., on March 24th, her temperature went up in the evening to 102° F., and at 7:30 P.M. she cried out, and the nurse found the right arm hanging almost powerless, and the child seemed dazed and complained of this arm. At 8:40 P.M. she took a fit, characterised by rapid twitchings of the right side of the face, frothing at the mouth, and hurried respiration; the twitchings likewise involved the right arm and also the muscles in the upper part of the chest on that side; the head was turned

towards the right shoulder; both eyes were much turned in the same direction (lateral or conjugate deviation), and the eyeballs themselves were in a constant state of lateral oscillation (nystagmus), the pupils being dilated; the face was pallid and the pulse very feeble; consciousness seemed completely lost. The house surgeon, Dr. Walker, had the child put in a warm bath, with cold applied to the head: but on being taken out the patient seemed as if about to sink, so he injected a teaspoonful of brandy into the rectum, and injected 10 minims of sulphuric ether hypodermically; the pulse improved but the convulsion persisted, so he sent for Dr. Finlayson. At 10.45 P.M. he found the localised twitchings already described persisting without even a momentary intermission; the temperature in the rectum was 106.6° F. Chloroform inhalation was at once begun, and very soon the violence of the twitchings was diminished; the hair was cut short and ice bags applied to the head, and large compresses, wrung out of ice cold water and constantly changed were applied to the whole of the lower part of the trunk. Under this treatment the convulsions ceased, and the appearance of the child, particularly as to lividity, improved. At 11.25 the temperature in the rectum was found to have come down to 103.2° F., and as it had fallen $3\frac{1}{2}^{\circ}$ F. in less than three quarters of an hour, it was thought proper to stop the application of cold, as the temperature was no doubt still declining, and undue depression might result. The cold applications were removed, the skin dried, and the child covered over with a warm dry blanket. At 11.40 P.M. the temperature in the rectum was 100.2° F., and in 20 minutes thereafter the child showed the first signs of consciousness, having been in the convulsion fit for 3 hours and 20 minutes. She was ordered some bromide of potassium, but she vomited soon after taking it; she slept, however, a good deal during the night. Next day she complained of pain in her head, and the right arm was found considerably, but not absolutely, paralysed. The right side of the face seemed likewise a little paralysed. During the course of the day after the convulsions the paralysed arm seemed a little colder than the other, but this difference did not persist. For the next few days some improvement was noticeable, particularly in the arm, which began to regain its power: although any severe testing was out of the question, the loss of power did not seem to have extended to the right leg, to any extent at least; for although she did not seem to move it so well as the other, it was found on 27th March that she could almost stand alone when lifted on to her feet: there seemed no implication of the sensa-

tion anywhere. The child could speak and seemed to understand very well what was said to her; she continued feverish and oppressed looking, and her cheeks were often greatly flushed, sometimes the one cheek and sometimes the other.

On 5th April, it became evident that some new respiratory disturbance was appearing, as now, for the first time, cough was becoming troublesome, and dulness and bronchial breathing had become very evident at the right apex, both before and behind; the indications of pulmonary mischief persisted to the end, sometimes the right and sometimes the left apex appearing more dull, and crepitant and moist râles appeared in both from time to time; occasionally, also, sickness occurred, but this was not very frequent, and some looseness of the bowels was noted once or twice. The child was often very restless at nights, asking to be turned again and again. The pyrexia presented a well marked remitting character, having never been near the normal after the convulsive seizure, the evening temperatures usually ran up to about 103° F. or 103½° F.; the morning minimum was about 99° F. as a rule. For the last four days of life the temperature underwent a steady decline to about 100° F., the characteristic oscillations ceasing; and this decline was the more notable as this period was complicated by the recurrence of convulsions, as will be detailed immediately.

On 16th April, at 7.20 A.M., a convulsion occurred, which lasted four minutes, with twitching of the right side of the face, the head being drawn to the right side and the eyes turned to the right as before; but the arm was not affected, and there was no loss of consciousness, as the child could answer questions during this convulsion. The convulsions were repeated at 7.30 and 7.40 A.M. At 7.45 A.M. one occurred, which lasted nineteen minutes. In this longer one the arm was also convulsed, the fore-arm being frequently bent up at the elbow. The muscles on the right side of the thorax were also implicated in the twitchings as on the first occasion; there were trembling movements of the tongue, and apparently some clicking sound there, and twitchings of the laryngeal muscles. During this convulsion, chloroform inhalation was used with immediate benefit. The twitchings recurred at 8.15, 8.30, 8.55; and at 9.30 there was only the turning of the head to the right side, with deviation of the eyes to the same side, and nystagmus. Twitchings in the face and arm returned at 12.25 and 12.50 for a few minutes, and although the head and eyes remained turned to the right for a little longer, they soon

regained their normal position, and no further convulsions occurred. The breathing, however, became worse, the colour got bad, unconsciousness supervened, and she died at 10·20 A.M. on 17th April.

An examination of the body was made by Dr. Newman, 7 hours after death. The right lung was consolidated throughout, but more markedly at the apex; it was found infiltrated with yellowish masses, and several small cavities were found at the apex. Similar, but less advanced changes, were found in the other lung. There was no ulceration in the bowels; the mesenteric glands were enlarged, and appeared a little curdy on section.

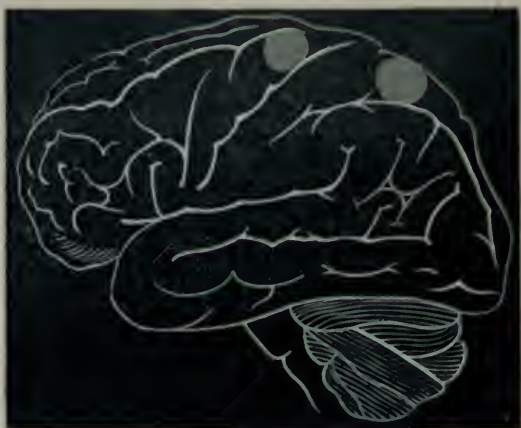


FIG. 4.

View of left side of brain, showing the situation of the two lesions of the brain found there.

The anterior lesion lies between the longitudinal fissure and the summit of the "anterior parietal convolution" (called also "ascending frontal" and "anterior central").

The posterior lesion corresponds with the "superior parietal sulcus," just behind the "posterior parietal convolution" (called also "ascending parietal" and "posterior central"); it extended quite up to and over the edge of the margin of the longitudinal fissure.

The dura mater was firmly adherent to the skull, and also to the brain substance in the region of the longitudinal fissure; and the membranes of the brain contained a good deal of serous fluid; the ventricles seemed slightly distended. On the *left side* of the brain there was a large patch, the size of a shilling, between the summit of the anterior parietal con-

volution and the longitudinal fissure. There was another patch, somewhat larger, immediately behind the posterior parietal convolution, just at the margin of the longitudinal fissure, and extending quite over its edge. (See fig. 4). The brain substance under this patch was very much softened,[†] and

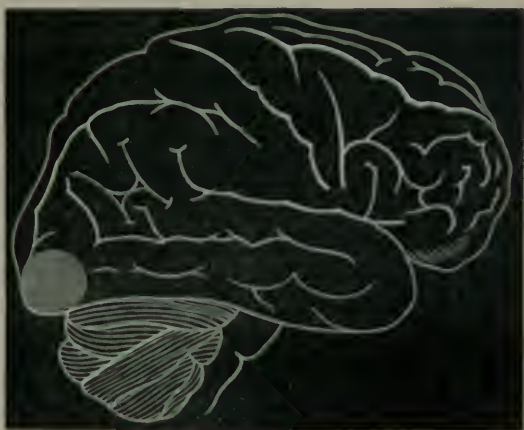


FIG. 5.

View of the right side of the brain, showing the situation of the lesion found there.

gave a sensation of fluctuation on handling it. On the *right side* a large patch was found at the extreme tip of the occipital lobe (see fig. 5), extending into the brain substance for about $\frac{3}{8}$ of an inch. The rest of the brain was normal, and, in particular, no lesion was discovered on slicing the pons, the crura cerebri, the medulla oblongata, the cerebellum, or the optic thalamus and corpus striatum. The patches referred to were clearly those described as scrofulous deposits or yellow tubercle. Portions of the patches put into spirit at once were subsequently examined by Dr. Newman and Dr. Joseph Coats, and the tubercular bacillus was found in them, but not in the lungs. The absence of bacilli in the pulmonary lesion here, and also in the case of acute miliary tuberculosis already detailed, is the more noteworthy, as both inspections were made soon after death—nine and seven hours respectively. It may be contended that even this delay was adverse to the finding of the tubercular bacilli; but, if so, we can seldom expect to have *post-mortem* examinations any earlier in this country.

Remarks.—When the violent outburst of localised convulsions occurred in a child who was supposed not to be seriously ill with any chronic disease, the first idea was that some meningeal hæmorrhage had occurred on the left side, in the region of the cerebral cortex connected with the movements of the arm. The suddenness and violence of the seizure, the alarming elevation of temperature, and the subsequent flushed appearance of the face seemed to confirm this idea, and the partial and temporary paralysis of the face and arm seemed likewise in accordance with this view. When, however, it became clear that a pulmonary affection, with consolidation and crepitus, had become developed, a reconsideration of this view seemed called for. Pneumonic affections had, indeed, been described by Legendre as frequently complicating meningeal hæmorrhages in those cases which survived the first shock; but these seem to have been usually rather of the type of lobular pneumonia occurring in patches, whereas this case seemed to be clearly one of infiltration of the apices, and particularly of the right apex. Of course, this disposition of the physical signs in the lung could not fail to suggest the existence of tubercular or phthisical disease, and if the pulmonary mischief were of this character, then, of course, the brain mischief might be presumed to be tubercular also, and the situation of the patches in the region already referred to might easily account for the localised convulsions. But on this view it seemed hard to understand why the physical signs in the lungs should have been developed in connection with, or at least soon after the convulsive seizure. The diagnosis was therefore still somewhat uncertain till the *post-mortem* examination was made. The lesion on the *left* side seemed to account very well for the convulsion of the right arm, as the anterior patch corresponds very well in situation with the centre for this part as determined by Ferrier. The posterior patch on the left side would have led one to expect an affection of the lower limb, but no convulsion occurred in it, nor was it to any extent paralysed. The lesion on the *right* side of the brain had probably little or nothing to do with the symptoms in this case, but it has been figured here as a matter of fact. The very marked deviation of the head and eyes, with nystagmus, led to the suspicion of some more deeply seated lesion in the brain; but as already stated, no such lesion was found.

WESTERN INFIRMARY.

REPORTS UNDER THE SUPERVISION OF J. LINDSAY STEVEN, M.B.

FROM PROFESSOR M'CALL ANDERSON'S WARDS.

CASE OF PURPURA RHEUMATICA (*Peliosis Rheumatica*).—[Reported by Dr. Steven.]—William B., æt. 38, unmarried, labourer, admitted on 5th June, 1883, complaining of an affection of the skin of seven weeks' duration.

His father, aged 70, is living and in good health, but his mother died of apoplexy at the age of 64. Three brothers and one sister are alive and well; two brothers and two sisters died young, the cause of death being unknown. There is no history of rheumatism in the family.

Previous to the onset of the present illness, this patient was always a very healthy man, and never before lost a day's work. For some months, however, before the attack commenced, he did not feel so well or strong as usual, and this he attributes to his not having got such good food as he was in the habit of getting before. During this period, also, he frequently had a bad taste in his mouth on awakening in the morning, and he observed that his gums were rather swollen and painful. At this time, too, he was employed in a bottle washing store, where he was much exposed to cold and wet, and he considers that this had something to do with the cause of his illness.

One afternoon, about seven weeks before admission, he was seized, while at his work, with a pain in his knee joints. At night the pain had spread down into the ankles, and had become much more severe. In a day or two after this the wrists became painful. The affected joints were swollen, the wrists especially so. The pains lasted for about a week, during which he was entirely confined to bed, and when they were beginning to subside, he, for the first time, observed the manifestations on the skin. They were situated on the fore-arms and lower extremities, and were most abundant on the latter. The colour of the spots varied from a bright reddish tint (seen best in the smaller ones), to a bluish purple. In size they varied from that of a pin head to that of a split pea or larger. In a short time the spots began to undergo the colour changes observed in an ordinary ecchymosis, and to fade. A few fresh spots came out occasionally after the first outbreak and underwent similar changes. There was no pain, itching,

or irritation of any kind in the affected skin, and the spots were not elevated.

Although the spots became gradually less in number they never entirely disappeared, and shortly before his admission to the Infirmary he had another attack of rheumatic pains, much less severe, however, than the first. This was followed almost immediately by a much more abundant outburst of the spots in the same situations, on account of which he came into hospital. On admission, a typical purpuric eruption is observed, presenting the characters noted above. Some of the spots are considerably larger than a split pea, and to them the term ecchymosis might almost be applied. In many places the yellowish or brownish stains of old spots are observed. None of them disappears on pressure; and they are often so numerous that they run into one another. On the legs the eruption is most abundant for about 8 inches above and below the knee joints, and on the arms below the elbow.

The patient feels quite well, and, if he did not see the spots, he would not know that there was anything wrong with him. He has never passed any dark coloured motions, and his urine has always been clear and healthy looking. The heart and lungs are healthy.

The treatment consists of careful attention to the general health and to the diet; and 10 drops of turpentine are administered thrice daily.

The present case is of interest in connection with that of a little girl, aged 6 years, who was admitted to Ward IV upon the 24th of April, 1883, and who was made the subject of a clinical lecture by Professor M'Call Anderson, which appeared in the *British Medical Journal* for 9th June, 1883, page 1103. She had been the subject of the disease for a period of 15 months, and, during her residence in the Infirmary, she exhibited several crops of eruption, each preceded by some pain and swelling in the joints, and by slight fever. The spots in this case were situated mainly upon the lower extremities, particularly below the knees. The skin of the affected parts was quite smooth, and there was no itching or disagreeable sensation of any sort.

The point of special interest in the comparison of these two cases is, that in the former we have the disease making its appearance for the first time at the age of 38 years. In his lecture, Dr. Anderson said—"The affection to which the term *peliosis rheumatica* has been given by Schönlein, and which is also named *purpura rheumatica*, is generally met with in young persons, or, at all events, before the age of 30 years, and

in those who have apparently been previously in good health." It is interesting, therefore, to note that here we have the disease making its appearance for the first time at a comparatively advanced age.

FROM PROFESSOR MACLEOD'S WARDS.

PISTOL SHOT WOUND OF THIGH.—[Reported by Alex. Jarvie Hood, M.B., formerly House Surgeon.]—J. N., æt. $5\frac{1}{2}$ years, was admitted to Ward XXI on the afternoon of 22nd February. The mother of the child (who brought him up from Blantyre) stated that he had been shot deliberately by a young man, a few hours previously, at a distance of about 20 yards, a pistol being the weapon used.

On examination, the patient was cold, but probably from exposure, as he had been brought all the way in a machine. He did not appear to have lost much blood, as the lips were of a good colour, and the pulse strong. He was quite conscious. There was a small elliptical wound about $\frac{1}{2}$ inch long and $\frac{1}{4}$ inch broad on the outside of right thigh, $1\frac{1}{2}$ inch above the knee joint.

The edges were contused and inverted, but no bleeding was going on, and the boy's clothes were not soaked to any extent with blood. It was stated that he had been attended to by a medical man at the time of the occurrence, but no particulars could be obtained as to whether the bullet had been extracted or not. Chloroform was administered and the wound examined by the house surgeon, but no bullet detected; the wound was found to lead to the bone.

As it was doubtful whether the bullet had been extracted or not, it was not considered advisable to enlarge the wound till Dr. Macleod examined it next morning; consequently it was washed out with 1-20 solution of carbolic acid, and antiseptic dressings, with a long osteotomy splint, were applied.

Next morning Dr. Macleod enlarged the wound, and found that it led down to the femur, at a lower level than the external wound. He also discovered that the surface of the femur was perforated by the bullet, but the shaft was not broken across. On further examination the bullet was found in the medullary cavity, at a lower level than the perforation. It was extracted by means of dressing forceps, and was seen to be a small lead bullet, much altered in shape by contact with the bone.

The wound was washed out again and antiseptic dressings

re-applied: the spray was of course used all through the operation, and the limb was replaced in the splint.

26th February.—Since the operation he does not appear to have suffered much; his temperatures have been little above normal, never being as high as 100° F. He sleeps well, and his appetite is good.

Wound dressed to-day; there was very little discharge, and what there was was quite free of odour.

8th March.—Discharge almost ceased, and wound nearly healed. General health excellent.

31st March.—Wound quite superficial, but depressed. Boracic lint substituted for antiseptic dressing.

6th April.—Wound quite healed: the cicatrix is depressed and adherent to the bone. He has the complete use of the leg and his general health is perfect.

GLASGOW ROYAL INFIRMARY.

FROM DR. PERRY'S WARDS.

CASE OF OPIUM POISONING COMPLICATED BY ALCOHOLISM.—[Reported by Mr. C. W. Stewart.] W. H., aged 28, was admitted into the Royal Infirmary at 12 midnight on 13th May, 1883, having swallowed one ounce of laudanum five hours before. Previous to his being brought to the Hospital, and not long after taking the laudanum, he had been caused to drink several tumblers of salt and water, with the result of copious vomiting.

When admitted, both pupils were contracted and insensible to light; his face was rather pale; respirations were slow and the pulse weak. If left at rest for a short time he seemed to fall asleep, but the least manipulation or tickling caused him to start up at once, and speak a few words. On several occasions he even favoured those present with snatches of songs, such as the "Rhine Wine," beginning in a loud voice, which, however, gradually got weaker and died away before the end of the second line. When roused, he had a decidedly wild and excited look in his eyes, and his general appearance was in many respects different from that usually seen in cases of opium poisoning. We were at a loss, for a time, how to account for these abnormal symptoms, but I

think it may be explained by the fact, afterwards ascertained, that he had been drinking somewhat freely during the earlier part of the day, the exciting effects of the alcohol counteracting, to some extent, the soporific effects of the opiate.

The treatment was mainly that usually adopted in such cases. The stomach having been washed out with tepid water, with mustard as a stimulant, some strong coffee was injected and left in. Several times, after any unusual exertion, the pulse seemed to fail, and for this, hypodermic injections of sulphuric ether were administered. The effects of atropia, as an antidote and as a stimulant for the heart, were also tried; having the state of the pupil as an index of its antidotal power, we are able to give much more than the usual dose, and, indeed, its use may with safety be continued until some decided effect is noticed on the pupils. By its action, too, the pulse gains in strength and steadiness. As to the various methods of keeping the patient roused, that of running him up and down is not usually the best; if carried on in the ward, it disturbs the other inmates; and in many cases, as regards the patient himself, the exhaustion caused more than counterbalances the benefit. The heart is weak to begin with, and it is known that patients have died a good many hours after a very effectual rousing by these means, apparently from failure of the cardiac action. In most cases a better method is to keep the patient sitting up in bed and awake by means of rubbing up and down the sides of the chest with the knuckles; this seldom fails to keep the person roused, besides acting as a direct stimulant to the various respiratory muscles. It may be alternated with the use of the wet towel and battery. It is also beneficial in rousing those who are under the influence of chloroform.

Next day patient was quite sensible, though rather excited and nervous; his temperature was 100°. He required no further treatment other than a saline laxative, stomachic powders for some slight gastric disturbance, and several full doses of bromide of potassium to allay his nervousness.

In a few days he regained his usual state of health, and was able to resume his work as a book-keeper.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1882-83.

MEETING VII.—2ND MARCH, 1883.

DR. GAIRDNER, *President, in the Chair.*

Rev. W. Jeffrey, L.R.C.P. Edin., William Stewart, M.D. of Glasgow, and Henrie F. Moodie, M.B., Kilbarchan, were elected members.

PROFESSOR CLELAND read ON ANENCEPHALUS, EXENCEPHALUS, AND SPINA BIFIDA, and exhibited specimens. [The paper will be found in the *Journal of Anatomy and Physiology*, April, 1883.]

Dr. Morton said that, in regard to spina bifida, it was in consequence of a communication from the Clinical Society of London that he was invited to call upon Professor Cleland to ascertain what he had in his own museum; and, at the Professor's suggestion, they looked through the Hunterian collection with the same object. This examination showed the presence of nerves in some of the specimens of spina bifida, and the absence of nervous tissue in others. He came away much pleased with the information he had gained. In regard to the practical application of remedies by English surgeons, as affected by the presence or absence of nervous tissue in the tumour, the reasoning adopted had been this:—If it is present, any attempt at cure would be unsuccessful, and essentially murderous. His own first attempt to remedy this affection was prompted by a sense of humanity to do what he could in the case of a child well formed except for this one deformity. He had already seen a number of preparations in all of which there was present either a strand of the spinal cord or a portion of the spinal cord itself. These were in cases not subjected to treatment. The division of all the cases which he saw into the two classes, the membranous and the skin-covered, presented itself to him; on both classes, after trial, he had successes. This gave him confidence: it was impossible to believe that, in all these cases, there was an absence of strands of the spinal cord. He did not say that if there be in any case a direct communication

with the central canal of the spinal cord the operation would be successful. He would say *a priori*, that it would be a most dangerous thing to operate on such a case. If the sac were merely a dilatation of the arachnoid sac; if the dilatation did not travel out of the spinal cord, there was not much danger of injuring the nerves by injection. These dots, or dimples, to which Professor Cleland had drawn attention, he had observed at an early period, and he had instinctively avoided these as much from a feeling that the sac might be bound down there, as from a fear of these dots marking a nervous connection. Another idea was to puncture at the side rather than in the centre of the tumour, from a supposition that the nervous communication was more probably central than lateral. Another reason for this was to enable the puncture to be more easily closed. But the greatest difficulty in the operation was to check the escape of the cerebro-spinal fluid, which was as essential a constituent of the cerebral matter as the solid portion. He had to thank a number of surgeons who had given him the results of recent cases which they had injected. The Clinical Society of London were desirous to get further specimens, whether dissected or not. The great museum in Lincoln's-Inn-Fields did not appear to be so rich in specimens of this kind as the Glasgow Hunterian.

Dr. Macleod said that the profession were greatly indebted to Dr. Morton for what he had done in the way of successfully treating spina bifida. Since he adopted this treatment he had not lost one case. The point in reference to the communication or non-communication between the sac and the nervous system was one of extreme importance. Certainly Dr. Cleland's statement in regard to this point was not what he had been led to suppose was the relation in these cases. In cases in which there were strands of the cord in the tumour, he was under the impression that the evil to be avoided, if possible, was the irritation of the nerves. The great practical danger of the operation was from the risk of leakage on puncturing the sac. Dr. Macleod gave details of several cases in which he had successfully performed the operation for spina bifida by Dr. Morton's method. The last case he had in the hospital was particularly successful. The tumour was very large, situated in the lower dorsal region. A good deal of fluid escaped on puncture, but the tumour quickly became solid after injection.

Mr. Clark said that Professor Cleland had touched on so many abstruse points in the physiology of development, that until they saw the paper in a printed form in the *Journal of*

Anatomy and Physiology, in which he presumed it would appear, it would be impossible to criticise it. If these changes took place at an early stage of development, it was difficult to understand the complete evolution of the rest of the body, especially the organs of sense; whereas, on the other hand, if the arrest took place at a later stage, it was equally difficult to account for the imperfect development of the central nervous system. Taking all things together, he was inclined to accept Professor Cleland's hypothesis, that the changes took place somewhat late, by the bursting up of the originally closed dorsal canal.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1882-83.

MEETING V.—13TH FEBRUARY, 1883.

The President, PROFESSOR M'CALL ANDERSON, *in the Chair*.

DR. DAVID NEWMAN showed an INSTRUMENT for keeping the vaginal wall in position in cases of operation for VESICO-VAGINAL AND RECTO-VAGINAL FISTULA.

DR. NEWMAN also showed a KNIFE devised by him for AMPUTATION AT THE HIP-JOINT. After referring to the various expedients adopted by different surgeons for checking hæmorrhage in this operation, Dr. Newman described in detail the knife, which he exhibited to the Society, and the advantages to be derived from its use. A complete description of this interesting and ingenious instrument will be found in the *Glasgow Medical Journal* for October, 1876, page 449, to which we beg to refer our readers.

The same gentleman also exhibited a specimen of CONGENITAL PERFORATION OF THE SEPTUM VENTRICULORUM in an adult, not accompanied by lesions of the pulmonic or aortic valves. The following is a note of the condition of the heart in this case. "The pericardium contains about two ounces of clear serous fluid; over the right ventricle there is a localised thickening of the pericardium. The right and left ventricles are dilated, and their walls are slightly hypertrophied. The pulmonic artery is dilated, its transverse measurement immediately above the valves being 8·5 cm., but there is no evidence of valvular disease. On the anterior wall of the

right ventricle there is a patch of thickened endocardium occupying an area of 2 cm., nearly corresponding in position to the pericardial thickening described above. This patch is situated about 3 cm. below the point of the segments of the pulmonic valves, immediately in front of the anterior curtain of the tricuspid valve. The chordæ tendineæ of the latter valve are thickened, and at their attachment to the papillary muscles there is considerable thickening, which spreads to some distance from the insertion of the chordæ tendineæ. The left curtain of the aortic valve is considerably enlarged, and the aorta itself is dilated, so that when slit open it measures 9.5 cm. The right segment of the valve is slightly thickened at the line of contact, and immediately under this curtain there is an opening communicating with the right ventricle. The right and left margins of this orifice are very firm, and there is no indication of any valvular derangement on either side. It is a point worthy of notice that the endocardial thickening on the right ventricle corresponds in position to the pericardial thickening, and to a point where a current of blood passing from left to right would impinge upon the surface of the right ventricle. The opening measures transversely 1 cm., and vertically 3 mm. The opening must have been patent at all times. The foramen ovale, and ductus arteriosus are closed."

A second specimen from the Royal Infirmary Museum was shown, exhibiting a very similar condition.

DR. W. L. REID showed two specimens of RETAINED PLACENTA AFTER MISCARRIAGE: one maintaining organic connection, the other not; and read the notes found at page 29.

M E D I C A L I T E M S .

UNDER THE DIRECTION OF

ALEX. NAPIER, M.D.

Carbolic Oil in Midwifery.—Recently, in the *Centralblatt für Gynäkologie*, there has been a series of articles on the doubtful antiseptic properties of greasy preparations of carbolic acid. Dr. Fehling, of Stuttgart (10th March), points out the extreme importance of having a trustworthy antiseptic

for obstetrical purposes, and that, since the investigations of Koch in connection with disinfection (*Mittheilungen des Kaiserlichen Gesundheitsamts*, 1881), many have entirely given up the use of carbolic oil. Koch showed that both the spores and bacilli of splenic fever were not in the least degree affected by three months' exposure to carbolic oil, but that it was very different with watery solutions. The investigations also of Wolffhügel and Knorre have shown that water, in contact with carbolic oil, becomes disinfectant, because it absorbs some carbolic acid from the oil, but only about a quarter of the amount which oil is capable of taking up from carbolic water. It is thus shown that carbolic oil, coming in contact with the secretions of the body, acts by giving off a portion of the acid to the watery part of them, and that in this way also a damp finger may be protected by it.

Dr. Haussmann, of Berlin (7th April) thinks it is impossible to get reliable oily or fatty solutions of carbolic acid, owing to the variability of their solvent powers.

Dr. A. Schücking, of Pyrmont (28th April), points out the fact that Lemaire, who introduced carbolic acid into medicine, in his work *De l'Acide Phénique*, published in 1863, made the observation that "The disinfecting power of carbolic acid is quite annulled by the addition of oil."

Another objection which may be urged against greasy preparations is, that they are difficult to wash away from the skin and nails, and, when frequent examinations of different individuals are made in a limited time, there is some danger of their becoming vehicles for the conveyance of septic matter from one patient to another.

It would thus seem that a watery solution of carbolic acid, or one readily soluble in water, is that in which most trust could be placed. Messrs. J. Richardson & Co., Leicester, manufacture a jelly composed of potass soap and glycerine containing five per cent of carbolic acid. This preparation, mixed with a little water, makes a very good lubricating and antiseptic agent.—W. L. R.

Treatment of Placenta Prævia.—Dr. Hofmeier's conclusions and methods claim our attention on account of the excellence of his results. His experience extended over forty-six cases, thirty-five of which were delivered in one year, and thus offers an excellent chance to judge of the method carried out by him. He first excludes from the forty-six cases three who were so far gone from hæmorrhage when he arrived that there was no chance for any treatment. Of the remaining

forty-three, in nineteen the situation of the placenta was central, in sixteen lateral, and in eight marginal—a very large percentage of central placentations. The usual rule of treatment is to tampon until the cervix is sufficiently dilated. This rule the author opposes. He scarcely ever uses a tampon, and as to the cervix his rule is only to wait till clear symptoms of labour set in, *i. e.*, either uterine contractions or funnel-shaped dilatation of the cervix. He then proceeds as actively and speedily as possible. This rule was followed in thirty-seven of the forty-three cases, after unfavourable experience in other methods with the rest. In nineteen cases the cervix was partially dilated, in eighteen either entirely closed or with only a funnel-shaped dilatation. The earlier the operation the more of necessity is the choice of it limited to the combined external and vaginal version with one or two fingers, the Wigand-Braxton-Hicks method. This was done in thirty cases, the foot was brought down in three breech cases, three times internal version was performed, and once the forceps applied. The combined turning was practised as long as possible, and the hand introduced into the uterus only when absolutely necessary. The feet, having been guided to the os, are seized, and by firm traction the buttocks effectually stop the hæmorrhage. In cases of central position of the placenta, the author, in spite of all the arguments against it, is in favour of perforating the placenta, and bringing the feet through. He did it in five cases, in three of which it was necessary on account of haste, and in two of which the child was already dead. It gives the mother the best chance, and the child's chance is by any method in such a case extremely small. The rest of the delivery, the author expressly states, should be *slowly* accomplished. The condition of the child may modify this rule, but even this must not make us increase the mother's risk. "The physician must have the courage to let a doubtful child's life be lost in his hands, rather than subject the mother to increased danger. The child is to be delivered *slowly*." Even so, the author's results were not bad as regards the children. Of thirty-seven, seventeen were already dead; of the twenty still living, six died (three premature, and three from perforation of the placenta). Altogether, sixty-three per cent died, and thirty-seven per cent lived, which is up to the usual standard. The statistics as regards the mothers, however, are much better. The author considers in them not only the immediate result, but the after course of the case. In each case ergotin was given subcutaneously during extraction, and the uterus was washed out afterward with a five per cent

solution of carbolic acid. Of the thirty-seven patients treated by these rules, *one* died. She had been treated for twenty-four hours by tampon, and the placenta was foul and offensive when the delivery took place, and she died seventeen days after from phlegmon and phlebitis of the thigh. The author believes she would have surely been saved if action had been prompter. This one case, out of thirty-seven, gives a mortality rate of 2·7 per cent, which is far below any published rate, others having been 10 per cent, 16 per cent, and 40 per cent. After-hæmorrhages occurred in some cases, but none which could not be controlled with ergotin, ice, and hot water injections. Of the six cases treated at an earlier date, and by the *waiting* method, one died; two had a long severe lying-in; four children were dead. Of the whole forty-six cases, therefore, five died—10·8 per cent. The author adds two useful hints as to the situation of the placenta. In nearly central situations, the smaller portion is on the lateral side, which is more loosened from the cervix lip. In placenta prævia the proportion in favour of the right side is about 11·4.—(*Zeitschrift f. Geb. und Gynak.*, No. 8, 1882). *The Practitioner*. May, 1883.

Caffein in Heart Disease.—Professor Lepine, in a recent paper in the *Lyon Medical*, urges the use of caffein in the treatment of heart disease, in the same class of cases in which digitalis is usually found valuable. He thinks that caffein possesses distinct advantages over digitalis, which he considers in detail.

He has been using caffein in these cases for four years, and has administered it to more than sixty patients. He maintains that the dose, to be effective in action upon the heart, must be considerably larger than that which has ever been generally administered heretofore. He gives from 60 centigrams (9·25 grains) to one gm. 50 (23 grains), and sometimes 2 grams (30 grains), or even 2 gms. 50 (38·5 grains). Such doses as are directed in the books he finds utterly inefficacious.

He found that this drug is equally effective with digitalis in retarding the rate of cardiac action and in increasing its force. In comparing the relative merits of the two drugs, he asserts that caffein acts much more rapidly than digitalis, which fact, though it may be of little importance in a chronic disease, may be of real importance where asystolia occurs as an acute condition. Secondly, he says that caffein is much better tolerated than digitalis, and if taken in divided doses during the day very seldom causes any symptoms of intolerance,

such as are not at all infrequent in the administration of digitalis. This he attributes to the facility with which caffeine is eliminated. Of course, where the kidneys fail to eliminate the drug it would be retained in the system, and would occasion disturbance, but he claims that the danger from this source is far less than that from the use of digitalis. Finally, he has found that by the majority of patients the caffeine is preferred to the digitalis. He has repeatedly found this to be so in cases where he has used both drugs alternately upon the same patient.

On the other hand, there is a certain proportion of patients (he has found this true in about one out of twenty), in whom caffeine produces insomnia and other nervous symptoms. While these cases are rare, they do occur, and this condition is an absolute contra-indication to the use of this drug.

The only other inconvenience in the use of caffeine is the expense of the drug, which places it beyond the reach of patients in straitened circumstances.

M. Lepine does not claim that caffeine will cure all cases of asystolia, but does assert that it has all the merits of digitalis, and some advantages over that drug. He promises to give reports more in detail of his own observations, and of cases that have been reported to him by some of his colleagues.—*St. Louis Courier of Medicine*.—J. L. S.

Division of the Femur below the Trochanters, performed simultaneously on both Sides, for Ankylosis. —Dr. Jos. C. Hutchison reports in the April number of the *American Journal of the Medical Sciences* for 1883, a case of a boy, aged 13 years, in which division of the femur below the trochanters was performed simultaneously on both sides, for angular ankylosis of the hip-joints following coxalgia. As the result of the operation, it is stated that the lordosis continues, but is slightly less marked than before the operation. There is some obliquity of the pelvis towards the right side. The lower extremities are straight, or nearly so; the thighs are slightly adducted, especially the right. He often uses a cane, but can get about very well without it. There is no motion at the hip-joints nor at the seat of the osteotomy, but there is considerable increase of mobility in the lower lumbar and sacro-vertebral joints.

This case is especially worthy of note from the fact that the osteotomies were made by open wounds directly to the bone; it was not intended to make them subcutaneous. The osteotome was introduced and placed transversely across the

bone in order to divide it, and consequently the external air was admitted directly to the interior of the bone.

This case has a further interest, from the fact that it is the only one in which osteotomy of the upper part of the thigh-bone has been done upon both sides simultaneously. The operation commends itself to the surgeon on account of both its simplicity and safety. The external wound behaves as well and heals as readily as a simple tenotomy; indeed, Dr. Hutchison states that he has seen more local disturbance from an ordinary tenotomy than occurred in any of the eight osteotomies that he has performed on the femur.

On the Value of Continuous Baths.—Dr. H. Leloir (*Le Progrès Médical*, No. 43, 1882) directs attention to the value of the continuous baths which are now being used in the hospitals of Vienna and Berlin, not only in the treatment of skin diseases, but in that of burns, bed sores, gangrenes, &c., and with great advantage. The temperature maintained is about 99° Fah. The apparatus consists of a mechanical bed in a large wooden zinc-lined box. The water is brought to the required temperature in a reservoir adapted to each bath. The patient sleeps and eats in this apparatus, and is generally well pleased to remain in it. He has seen patients who have remained from fifty to a hundred days in the bath, and who, on leaving it, were by no means tired of their prolonged aquatic sojourn, but on the contrary, spoke with praise of the relief which they had obtained.—*Birmingham Medical Review*. May, 1883.—J. A. A.

A Simple Means of obtaining Local Anæsthesia.—D. Cheize (*Journ. de Méd. and de Chir. Prat.*, February, 1883) writes that, wishing to remove an ingrowing toe-nail, and being without a spray producer, he covered the toe with a pledget the size of a crown piece, poured ether on it, and evaporated this by means of a pair of bellows; in five minutes anæsthesia was complete and lasted while the nail was removed, and the matrix seared with the actual cautery.

Carreau on Quinine in Opium Poisoning.—Dr. Carreau (*Journ. de Méd. de Paris*, 25th November, 1882) reprints two cases of opium poisoning in which the administration of large doses, in one case 80 grains, of sulphate of quinine appeared to have the effect of restoring the patient to consciousness; emetics and purgatives were also employed; one case was fatal. He mentions three other successful cases in which quinine was used.

Inguino-properitoneal Hernia—(Krönlein), *Hernia en bissac*, *Zwirschsackbruch*, *Hernia with additional sac* (Birkett.)—Dr. Max Oberst describes a case of this form of hernia which was operated upon in Volkmann's clinique at Halle, in June last. A man, aged 25, had had a serotal hernia on the left side for eight years, for which he wore a truss. Twenty-four hours before admission to hospital it had come down in consequence of a severe lifting effort, and resisted all attempts at reposition. On admission, he was found to have a left serotal hernia of considerable size, and there was noted a globular bulging of the abdominal parietes above, and external to the external ring. The serotal hernia was easily reduced by taxis under chloroform, but immediately returned when the pressure at the ring was removed. When the hernia was reduced the swelling above noted was markedly increased, diminishing again as the hernia was allowed to descend again into the scrotum. Diagnosis was made of "Hernia inguino-properitonealis," and as the symptoms were not urgent, the serotal hernia was reduced, and a bandage applied to retain it in position. Next day the patient was much weaker, complained of pain, and suffered from meteorism and stercoraceous vomiting, and it was found that the hernia had slipped down beneath the bandage. Herniotomy was then performed, and a small atrophied testicle was found lying in the canal beside the loop of bowel, showing the hernia to be a congenital one. The external ring was found to be wide, and the bowel was reduced easily without enlarging the opening, but, as before, came down again whenever pressure was removed. Upon drawing down the intestine so as to permit further digital explorations of the canal, it was found that the gut had not been returned into the abdominal cavity at all, but into a wide space extending between the peritoneum and the overlying tissues towards the anterior superior spine of the ilium, and communicating directly with the sac through the external ring. This cavity communicated with the abdominal cavity by a small, tight, well defined ring, which was found to be firmly constricting the protruded loop of bowel. When this ring was dilated with the tip of the finger, the bowel was easily replaced in the abdomen, passing away for the first time with characteristic "slip and gurgle." The wound was allowed to heal by granulation, the edges of the sac being stitched to the edges of the external wound, and the patient made a good recovery.

The following references on the subject are given in Dr. Oberst's article:—Krönlein, in *v. Langenbeck's Archiv*, Bd.

xxv, and *Archiv f. Klin. Chir.*, Bd. xix and xxii; Neuber, in *v. Langenbeck's Archiv*, Bd. xxii; Rossander, in *Hygeia*, Jan., 1881; Trendelenburg, in *Verhandl. d. deut. Gesellsch. f. Chir.*, x; Kongress and Bolling, in *Berlin Klin. Wochenschr.*, 1882. No. 26.

The special features of this form of hernia are in the description of the case given above; one feature generally noted in such cases is that the symptoms of strangulation are not urgent. In 20 out of 28 recorded cases the hernia was of the congenital form.

The cause of this peculiarity in the congenital form, according to Trendelenburg, is the persistence of a cavity which must exist at a certain stage in the descent of the testis; another instance of arrested development. In acquired cases, according to Krönlein, the cause is mechanical, the pressure of a badly fitting truss or repeated attempts at taxis, forcing the internal away from the external ring, and dilating the sac or canal into the pouch between the layers of the parietes.

Dr. Oberst suggests that when the condition is recognised, the internal ring might be dilated with the tip of the forefinger, pushing the skin of the scrotum before it up through the external ring, except, of course, where the condition of the bowel is doubtful. If this fails, herniotomy, as in his own case, is necessary, and if that also failed, then Trendelenburg's method might succeed—viz., laparotomy and reposition of the bowel by traction from within.—*Centralbl. f. Chirurgie*, 1883. No. 5.—D. M'P.

Glycosuria in Malaria.—M. Verneuil, in writing on this subject, formulates the following conclusions:—

1. Malaria frequently engenders glycosuria.
2. This presents itself under two forms: the one contemporaneous with the febrile accession, and passing away as it passes off; the other more or less slow, independent of the febrile paroxysms, and in every case permanent. The second form is probably a sequel of the first, but the period of the substitution of the one for the other is quite unknown. There is even no proof that, in malarial districts, diabetes cannot establish itself from the first as a latent form of the poisoning.
3. Permanent glycosuria seems to attack by preference strong malarious arthritic subjects.
4. Malarial glycosuria seems to be one of the benign forms of diabetes.
5. Intercurrent affections occurring in malario-diabetics

may take certain characters of the malaria, or of the glycosuria, or of both at the same time.

Traumatic lesions may readily excite the two diatheses, but by preference the malarial manifestations.—*La France Médicale*, 1st December, 1881.—G. S. M.

Anæsthesia of the Larynx.—Professor Brown Séquard (*Académie des Sciences, Seance*, 11th September, 1882) says that, in opening the pharynx of mammals by an incision between the base of the tongue and the angle of the lower jaw, so as to bring into view the epiglottis, the upper part of the larynx and the glottis, he directed on these parts a very rapid current of carbonic acid gas, and found at the end of a time, varying from fifteen seconds to two or three minutes, that the sensibility of the laryngeal mucous membrane was completely lost, and that it was possible to introduce a tube or a finger into the laryngeal cavity, and to twist it about without exciting any reaction.

Fermentation of the Nitrates.—In a communication to the *Académie des Sciences* MM. Gayon and Dupetit, after noting that the researches of MM. Schlœsing and Müntz have established that nitrification, in the soil and in organic liquids, is due to the development of aerial microbes (*aérobies*), state that certain facts, reported by M. Boussingault, M. Schlœsing and others, led them to think that the inverse reaction, the reduction of the nitrates, was also a physiological phenomenon. They have accordingly made experiments with the view of confirming this hypothesis.

Some drain water, with the addition of two centigrammes of nitrate of potassium per litre, was mixed with decomposing urine; the nitrate disappeared slowly, and the liquid became filled with microscopical organisms. Successive cultures led to the reduction of one or even two decigrammes of the nitrate per litre. Beyond this limit, drain water ceased to be of service; but by replacing it with chicken soup, neutralized by an excess of solution of potash, as much as 5 per cent was totally decomposed.

The microbes which develop under those circumstances are clearly the cause of the denitrification; for if the mixture be sterilized by heat, or if chloroform or sulphate of copper be added, the solution remains limpid, and the nitrate of potash is preserved unaltered.

The organisms by which this is brought about are non-aerial (*anaérobies*); cultivated on a large surface, and in contact with

the atmospheric air, their function is lost or at least greatly impaired.

The most favourable temperature is comprised between 35° and 40° C. The presence of organic matter is necessary; thus, chicken broth is more powerful than drain water. But all organic matters are not suitable. Among those employed, oil or sweet almond oil, glycerine, glycol, sugar, alcohols of the fatty series, tartrates, &c., the best results were given by sugar, ordinary alcohol, and especially by propylic alcohol. For example, it was enough to add three or four drops of propylic alcohol to provoke anew denitrification which had been suspended. The oils were rapidly saponified.

Two substances were peculiarly interesting—carbolic and salicylic acids. Employed of the ordinary antiseptic strength, and even stronger, not only did they not interfere with the life of the reducing microbes, but they also disappeared completely with the nitrate in the presence of either sugar or propylic alcohol. M. Müntz has cited certain facts which confirm the preceding, at least as regards carbolic acid; from his observations it appears that certain organisms destroy it, even when present in the proportion of several grammes per litre.

Under favourable conditions of temperature and medium, even with artificial liquids, the decomposition of the nitrates presents all the signs of an energetic fermentation; it is accompanied by a rapid development of microbes, an abundant formation of bubbles of gas, and a thick froth. About 1 gramme of nitrate of potassium per litre per day is thus transformed.

The gas which is disengaged is pure nitrogen, representing a large proportion of the nitrogen of the nitrate; the remainder forms some ammonia, and perhaps some derived amides of the organic matter employed; the oxygen forms carbonic acid, which remains in the liquor in the form of the neutral or the bi-carbonate. The rôle of the organic matter is therefore to make the products of the fermentation of the nitrate enter into new combinations.

The nitrates of soda, ammonia, and lime ferments in the same way as the nitrate of potash.

These facts, which they intend soon to increase by observations on the fermentation of nitrates with the production of protoxide of nitrogen, binoxide of nitrogen or of nitrites, will serve to explain a certain number of the phenomena of the chemistry of the soil, of manures, and of waters.—*La France Médicale*. 21st Oct., 1882.—G. S. M.

Cardio-Vascular Drugs and Poisons.—M. Germain Sée thus tabulates the chief facts now known about the elective action of these agents:—

	STIMULATION.	PARALYSIS.
Cardiac muscle.	Digitalin. Iodine in small doses. Camphor. Caffeine.	The same, in the second period of action. Emetine. Salts of copper, barium, and potassium. Chloral in large doses. Scillain.
Intra-cardiac muscular motor centres.		Saponin in its last period of action. Iodine in large doses.
Intra-cardiac inhibitory centres.	Muscarine.	Atropine. Sparteine in large doses.
Intra-cardiac ramifications of the inhibitory filaments of the vagus nerve.	Nicotine. Pilocarpine. Calabar bean.	Pilocarpine, second phase of action.
Trunk of the vagus nerve.	Aconitine. Nepaline.	Sparteine. Nepaline, second phase of action.
Accelerator filaments of the great sympathetic.	Apomorphine.	Sparteine.
Medullary inhibitory centres.	Digitalin.	Chloral.
Vaso-motor centres.	Bromide of potassium.	Croton-chloral. Hydrocyanic acid.

New York Med. Journ.

Gummatous Osteomyelitis in Long Bones.—H. Chiari, in the *Vierteljahrsschr f. Syph. u. Dermatologie*, 1882, Bd. ix, states that central gummata in the medulla of long bones are much more common than is generally supposed. They were found in 9 out of 29 cases of old acquired syphilis examined. They are seen as white or fibrous gelatinous tissue, usually showing central caseation. Their size varies from that of a

pea to that of a walnut. They are often multiple, and occur most frequently in the tibia and femur. Symptoms are seldom manifested during life, and their usual termination is either absorption with thickening of the bone or merely the formation of a cicatrix without special characters. They are sometimes the cause of "spontaneous fracture," or may produce central necrosis. In the *Wien. Med. Blätter*, 1882, No. 51, Neumann records a case of spontaneous fracture of the humerus in a man aged 47, due to this cause, in which a false joint afterwards formed.—*Centralbl. f. Chir.*, 1883. No. 6.—D. M'P.

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- Observations on Lithotomy, Lithotrity and the early Detection of Stone in the Bladder, with a Description of a new Method of Tapping the Bladder. By Reginald Harrison, F.R.C.S., &c., London: J. & A. Churchill. 1883.
- On the Treatment of Wounds and Fractures. Clinical Lectures. By Sampson Gamgee, F.R.S.E. With 44 Engravings on Wood. Second edition. London: J. & A. Churchill. 1883.
- The International Encyclopedia of Surgery; a Systematic Treatise on the Theory and Practice of Surgery. By Authors of various nations. Edited by John Ashurst, Junr., M.D. Illustrated with Chromo-lithographs and Woodcuts. In six volumes. Vol. III. London: Macmillan & Co. 1883.
- The Medical and Surgical History of the War of the Rebellion. Part III. Vol. II. Surgical History; prepared under the Direction of Joseph K. Barnes, by George A. Otis and D. L. Huntington. First issue. Washington: Government Printing Office. 1883.
- Lectures on the Localization of Cerebral and Spinal Diseases. By J. M. Charcot. Translated and Edited by W. B. Hadden, M.D. London: The New Sydenham Society. 1883.

THE
GLASGOW MEDICAL JOURNAL.

No. II. AUGUST, 1883.

ORIGINAL ARTICLES.

ON MALPOSITIONS OF THE KIDNEY.

By DAVID NEWMAN, M.D., C.M.

(Being his Thesis for the Degree of M.D. in the University of Glasgow.)

AT the present time there is great diversity of opinion in regard to the pathological importance and therapeutic indications of misplaced kidney, and more particularly when the misplacement is associated with mobility of the organ. The majority of observers regard cases where the kidneys are permanently fixed in an abnormal situation merely as anatomical curiosities of no clinical importance; but when the organ floats free in the abdomen, and gives rise to serious symptoms, it is not an uncommon occurrence to find that the surgeon considers the life of the patient so much in danger, that he does not hesitate to extirpate the kidney. In regard to the latter condition, two extreme views are held by Keppler on the one hand, and Landau on the other. The former considers that a movable or floating kidney should be excised as soon as it is detected, and regards it as a continual source of danger to the patient; while the latter goes so far as to say that death does not result from this condition, and that in no case is nephrectomy justifiable. Between these two opinions there is plenty of room for discussion. Several cases of displacement of the kidney having within the last few years come under my observation in practice and in the *post-mortem* room of the Glasgow Royal Infirmary, I venture to put them

on record, and at the same time desire to make some observations regarding their etiology, pathology, and diagnosis, and to express an opinion as to the line of treatment which should be employed in such cases.

Displacements of the kidney may be divided into three kinds—simple misplacement, without mobility of the organ; “movable kidney,” where the kidney is perceptibly mobile behind the peritoneum; and “floating kidney,” where the peritoneum forms a meso-nephron which attaches the kidney loosely to the spine.

I. SIMPLE MISPLACEMENT WITHOUT MOBILITY.

Simple displacement of the kidney without mobility is by no means uncommon. Perhaps no organs in the body vary more in their position than the kidneys. Their relative distance from the spine, or their position in relation to other organs is observed to vary considerably. For instance, without any evident cause, one may be found close up to the spleen, almost touching the diaphragm and vertebral column, while the other organ is situated considerably below the crest of the ilium, and removed some distance from the spine. From observations which I have made regarding this point, it seems clear that malposition of the kidney within certain limits is a pretty frequent occurrence, and may exist without causing any disturbance. In 300 *post-mortem* examinations eight cases occurred where the position of one or both kidneys might be described as abnormal. In three of these cases there was also malposition of the supra-renal capsule. Malposition of the kidney does not, therefore, necessarily involve an alteration in the position of the supra-renal capsule, although the intimate anatomical relationship which exists between them might lead one to expect that any condition causing the kidney to occupy an anomalous position, would also cause a disturbance of the corresponding supra-renal body. One case was peculiar, and was the only instance where the displacement was very marked; in the others, the abnormality might have been overlooked had care not been taken to observe the exact position of the organs. In the case referred to the right kidney was situated about half-an-inch to the right of the promontory of the sacrum, and the left in the iliac fossa, two inches to the left of the sacro-iliac synchondrosis. The right kidney was small in size, and so altered in

form that there was no hilus, and the ureter passed from the lower aspect of the organ. The tissue of the organ was normal in appearance, and the arteries, two in number, came off from the aorta about an inch above its bifurcation. The left kidney was normal in every respect, except in its position. There was no evident cause for the abnormality; the other abdominal organs were practically normal, and there was no indication of inflammatory or other mischief within the abdomen. Many such cases have been recorded. M. Aubé mentions a case where the left kidney was found between the common iliac arteries, close to their origin from the aorta. Pacoud narrates another, in which a kidney was found situated in the pelvis between the rectum and bladder, and somewhat similar instances have been described by Drouin, Bellini, Andral, Bonet, and others.

In my own cases, and in those referred to by these observers, alteration in form of the displaced organ seemed to depend on the situation occupied by it. For example, in M. Aubé's case the kidney was flattened, and its anterior surface divided into three parts by two depressions formed by the passage of two arteries. As a general rule, malpositions of the kidney are associated, particularly when the displacement is congenital, with some deviation from the normal in regard to the position of the large intestine and peritoneum, and not uncommonly the distribution and number of the blood-vessels and the course and length of the ureter are found to be abnormal. Roberts states that in twenty-one cases of congenital malposition of the kidney, which he was able to collect and compare, the abnormality was in every instance confined to one kidney: and the left kidney was much more commonly affected than the right (left 15, right 6). Most frequently the kidney was found lying obliquely on the sacro-iliac synchondrosis. In some cases the organ was fixed beside the uterus, or transversely between the rectum and the bladder, or across the prominence of the sacrum.

Dr. Butler has described and figured a curious and interesting case where the kidneys were united, or fused into one, with a central line or raphé making a longitudinal fissure over the surface of the organ, better marked on the posterior than on the anterior aspect. In length, they extended from the border of the fourth lumbar vertebra downwards over the promontory of the sacrum to the middle of that bone—in all, five inches; and in breadth measured three and three-quarter inches. The ureters sprang from a pelvis, which occupied the centre of the anterior surface of the organs, and then passed off on each

side, and discharged into the bladder at the usual sites. The arteries supplying the organs were four in number—above, a single large trunk came from the aorta, just at its bifurcation, immediately in front of the sacra media artery, and, passing downwards, broke up into five small branches before entering the substance of the kidney; on the left side, two arteries came from the left internal iliac, near its origin; on the right side, an artery passed into the organ from the right internal iliac.

These remarkable cases of malposition of the kidney seldom give rise to serious symptoms, and not uncommonly escape observation during life. Cases, however, have been recorded where the misplaced kidney has been mistaken for an abdominal tumour, or, in the female, has from its position within the pelvis become a serious obstacle to parturition.

Besides being liable to congenital malposition, the kidney may be displaced upwards, downwards, or laterally from the enlargement of other organs, such as the liver, spleen, supra-renal bodies, or pancreas, or from the pressure of tumours near them. When the right kidney is depressed by an enlarged liver, not an uncommon accident, it is most usually rotated on its short axis, so that the hilus is turned upwards, and the upper portion of the kidney is most depressed. Rayer mentions an instance where the right kidney was forced down by an enlarged supra-renal body, and cites a case of Hohl's, where a kidney, situated deeply on the inside of the psoas muscle, offered an obstacle to parturition by retarding the passage of the child's head.

The number of cases of fixed malposition of the kidney, now upon record, are very numerous. Most of them, however, were discovered after death, and only in a few instances was any inconvenience occasioned during life.

II. MOVABLE AND FLOATING KIDNEY.

The terms, "movable kidney" and "floating kidney," are used by most writers as synonymous. It is necessary, however, to carefully distinguish between those two conditions in order to have a clear understanding of the pathology of the subject; and also, for the sake of treatment, it is well to have an exact mode of expression and an accurate knowledge of the varieties of the malpositions which may be met with in practice.

In cases of "movable kidney" the organ is mobile behind the peritoneum, either within its adipose capsule, or in a sac formed between the peritoneum and the muscular wall of the abdomen, whereas, in cases of "floating kidney," the kidney moves about within the cavity of the peritoneum, and is attached by a mesentery to the spine.

The distinction here drawn between movable and floating kidney was adopted by Sir William Jenner, in his *Clinical Lectures on the Diagnosis of Extra-pelvic Tumours of the Abdomen*; he says—"I told you that the kidney is moved a little by the respiratory movements. Sometimes it can be moved by the hand, and this much more frequently than you would suppose. A movable kidney is one thing; a floating kidney is another. We very rarely see or feel a floating kidney. I have never met with one after death, though I have felt in a patient what has been supposed to be one. A floating kidney is a kidney that has a mesentery—a fold of peritoneum attaching it very loosely to the spine. A floating kidney, therefore, can be moved about to a considerable extent—to the extent of the length of its mesentery. A movable kidney can only be passed up and down a little; it slips a little under your fingers." In a report, by a Committee of the Pathological Society of London, appointed to inquire into the matter of displaced, movable, and floating kidneys, the following passage will be found:—"Looking at the matter of kidneys unduly movable, we think it well to divide them into two varieties. The first form is that in which the organ may be moved to some extent beneath the peritoneum. A certain degree of this mobility is not very uncommon. It will be found to be present in a considerable number of subjects, if, as soon as the body is opened, the kidneys be handled without the removal of any of the organs. The amount of movement possible is not commonly greater than an inch or two upwards and downwards. Occasionally, however, a flaccidity of the peritoneum exists to a much greater extent, so as to allow the kidney to move under the peritoneum over a space, described in one of the reports sent to us as a circle having a diameter of eight or nine inches. In the second variety, the peritoneum passes over the posterior surface of the kidney, forming a kind of meso-nephron.

"From the evidence which has been laid before us, it appears that these so-called floating kidneys may depend upon either of the above states; that the peritoneum may be flaccid and loose to such an extent as to allow the kidney to move under it, so as to come in contact with the wall of the belly; or to leave its

natural place and pass to or below the brim of the pelvis; or, indeed, in some cases, to encroach upon the opposite side of the belly. A like movableness or floating of the kidney may be due to the presence of a meso-nephron, already spoken of. It will, therefore, be seen that the terms movable and floating kidney must not be used as strictly corresponding to two anatomical varieties, since a kidney without a meso-nephron may give rise to all the clinical phenomena shown by one with a meso-nephron. Both these anatomical varieties merge by insensible degrees into one another, and these two expressions, movable and floating, can only be used as implying different degrees of the diseased state, which, according to its extent, may give rise to a slightly mobile or an extremely mobile kidney."

In the above statement there are several points to which we will refer hereafter.

There was considerable doubt thrown upon this subject by Mr. Lawson Tait in a short paper in the *British Medical Journal*, of November last, where, in reference to a case "pronounced to be a 'floating kidney' by several distinguished authorities," but which proved to be a distended gall bladder containing a large number of gall-stones, he said—"I put the floating kidney theory altogether on one side; besides, I have never seen such a thing, either in life or in a museum, nor have I met any one who has. In fact, I have no belief in its existence as a pathological incident." The truth of this rather bold statement was controverted shortly after in a letter by Dr. Seymour J. Sharkey, of London, who evidently understood Mr. Tait to refer in his paper to movable as well as floating kidney. Although Mr. Tait used the term "floating kidney" in his paper, there is no evidence in his remarks that he limited it to cases of undue mobility of the organ owing to the presence of a meso-nephron; it seemed rather that he wished to deny the possibility of both conditions. In a subsequent letter, however, he confines the term "floating kidney" "to the state in which the kidney moves by reason of the existence of a meso-nephron," and affirms that he has never seen, nor is there recorded, so far as he can discover, "any instance where, by reason of this kind of mobility, a 'movable kidney' has been an incident of any pathological importance."

Floating kidney is no doubt less common than movable kidney, but whether the peritoneum remains loose or becomes united around the kidney does not in any way increase or diminish the pathological importance of the displacement,

although from a surgical point of view the former must be regarded as more dangerous than the latter condition. Both varieties appear in certain cases to be equally troublesome to the patient. Several cases of floating kidney have been recorded, and if Mr. Tait had taken the trouble to look up the literature of the subject, he would no doubt have come across them. I may mention two of these, where it is distinctly stated that a meso-nephron was found to be present. Dr. William Henderson, in the *Medical Times and Gazette*, 1859, vol. ii, p. 501, states, in reference to a case of his, that, "on examining the abdomen, the right kidney was found to be perfectly movable, and was suspended, as it were, by a prolongation of the peritoneum enclosing the kidney, and forming a distinct mesentery, which allowed it to move in all directions."

That this case was not only of pathological, but also of clinical importance, is obvious from its history. "She still complained of the shooting pain occasionally passing through the abdomen, and which she referred to the tumour. These pains being entirely distinct from the constant pain caused by the diseased vertebræ, I was at that time led to suppose the tumour to be of a malignant nature, and probably connected with the mesentery or omentum. . . . The tumour at this time could not be discovered; and any effort on her part to cause it to protrude was attended by the same shooting pain passing through the abdomen."

Dr. Priestley has described a case, in the same journal for 14th March, 1857, p. 262, where, at the *post-mortem* examination, "the peritoneum was found reflected over the posterior surface of the kidney, giving it thus a mesentery, and allowing it very considerable motion in the right side of the abdomen." At a meeting of the Glasgow Pathological and Clinical Society, held in April, 1883, Dr. Lindsay Steven showed a specimen where there was a renal mesentery.

From the remarks quoted from Sir W. Jenner's lecture it would appear that he bases his diagnosis between movable and floating kidney upon the amount of mobility observed. "A floating kidney can be moved about to a considerable extent—to the extent of the length of its mesentery. A movable kidney can only be passed up and down a little, it slips a little under your fingers." The Committee of the Pathological Society also used the degree of mobility as a means of distinguishing between the two conditions, although they were aware that an equal amount of movement may result from either state. The clinical distinction may be

difficult, but as far as the anatomy is concerned, the two varieties are easily and clearly separated from one another. The importance of discriminating between the one variety and the other is all the greater when operative interference is contemplated. In the case of the movable kidney the organ may be got at from behind, without opening the cavity of the peritoneum, whereas in floating kidney (where there is a meso-nephron), the kidney lies within the cavity, and cannot be reached without entering the peritoneum.

In the following pages care will be taken to distinguish the two forms by their proper terms.

MOVABLE KIDNEY.

If the condition of the kidneys as regards mobility be observed in a large number of bodies, a certain degree of movement, sometimes amounting to two or three inches, will be found to be not uncommon. The peritoneum in many cases, particularly in women who have borne large families, is very flaccid, and its union with the posterior abdominal wall is but slight; and if, in addition to the loosening of the attachment of the peritoneum, the normal adipose tissue surrounding the kidneys has become atrophied, more or less movement of the organs may be permitted. The right kidney is more liable than the left even to slight disturbance. This is probably due to the fact that normally the right kidney is not bound down so firmly to the abdominal wall as the left. This movement seldom exceeds an inch and a half, but to this extent it is very common. Slight movement of the kidney is not of great importance, unless in so far as a study of the causes of it may throw some light upon the etiology of the graver forms.

Before considering in detail the etiology and pathology of these conditions, a few remarks regarding the topographical anatomy of the kidney may not be out of place. The kidneys are placed on either side of the vertebral column, on a level with the last dorsal and upper two or three lumbar vertebræ, the right organ being as a rule a little lower than the left. They are usually considered to lie posterior to the peritoneum, but Arnold believes that they are placed between two layers of the peritoneum posterior to the general peritoneum cavity, so that the kidneys may be exposed without opening the latter. They are kept in their position by their vessels and loose areolar

tissue, and, according to Landau, the attachment of the left kidney is firmer than that of the right. The coverings of the kidney may be divided into two distinct portions, the true or fibrous capsule forming a thin, smooth, and firm investment, which can be easily separated from the substance of the organ, to which it is united by delicate processes of connective tissue, and by minute blood-vessels; and the outer capsule, tunica adiposa, composed of loose areolar tissue, in which a varying amount of fat may be deposited according to circumstances. In obese persons the fat is frequently considerable in amount, and may prove a source of error in estimating the size of the kidneys. The outer layer of the tunica adiposa is firmer than the part in apposition to the kidney. When corpulent persons emaciate rapidly, this capsule becomes very loose from absorption of adipose tissue, and its attachments to the kidney on the one hand, and to the surrounding parts on the other, become less firm than normal, and so may favour any tendency to undue mobility.

All who have opportunities of examining a large number of bodies must have noticed how frequently the kidneys are loosely attached to the surrounding parts, and thus capable of movement. Either the kidney is movable within the adipose capsule, or it and the capsule are together movable behind the peritoneum. This is to be observed particularly in persons who have been corpulent, and have emaciated before death.

ETIOLOGY.—In 1,422 patients which he examined, Skorzewsky found that 32 females out of 1,030, and 3 out of 392 males, suffered from movable kidney. In 19 patients (2 males, 17 females, 9 of whom were primiparæ, 8 multiparæ) the right kidney was movable; and in 11 patients (1 male, and 10 females, 6 of whom were primiparæ and 4 multiparæ) the left kidney was movable. Both kidneys were movable in 5 primiparæ. The affection is therefore much commoner than is usually supposed, nearly two and a half per cent of the patients examined having been found to suffer from it. The fact that mobility of the kidney is more common in women than in men is established by statistics. In 290 cases which I have been able to collect, 252 were in women and 38 in men, or about one male case for seven female. The age at which this affection is most frequently met with corresponds to the child-bearing period and a few years succeeding it. Thus, about 46 per cent of the cases were observed between the thirtieth and fortieth years, and 20 per cent from

forty to fifty years of age, and, in all, 81 per cent between the ages of twenty and fifty.

The undue proportion of female cases and the period at which the malady is most commonly seen, seem to indicate that pregnancy may have something to do with the production of the affection, either by causing an undue looseness of the abdominal walls, by pressure of the expanding or contracting uterus, or by the spasmodic voluntary muscular efforts during parturition. In the cases recorded by Sawyer, Becquet, Roberts, and others, most of the patients have been women who have borne children. The first named observer has proposed a theory for explaining the production of movable kidney. In the cases which he has seen he has noticed a curious fact—namely, the relationship which exists between the menstrual period and the time when movement of the kidney commences. He believes that at the menstrual period the kidneys become congested, so that displacement may result from the increase in the weight of the organ. Dr. Gueneau de Mussy adopts this view, but adds, however, that while he quite recognises that congestion may supervene, sometimes as a pathological condition, and sometimes as an epiphenomenon in the malady we are now considering, it must be admitted to be neither a constant cause nor a necessary complication, because movable kidneys are not uncommon in men. In my first and third cases certainly there was an increase in the severity of the symptoms during the menstrual periods. In the first case, during the intervals, the left kidney seldom troubled the patient; but at her illnesses, which usually lasted for three or four days, it was sure to become displaced and give rise to severe symptoms. I fancied that the organ was increased in size and weight at these periods, and the patient, without the idea being suggested to her, remarked several times that she thought that her kidney was heavier when she was ill. Anything that causes a flaccidity of the abdominal walls and dragging upon the viscera, especially the colon, will tend to loosen the posterior attachments of the peritoneum. And, if this be associated with diminution of the amount of the normal fat surrounding the kidneys, it will be easily understood that mobility of the kidney may be produced.

Dr. Sawyer, in a paper on the subject, remarks:—"Many, perhaps by far the larger number, of the subjects of floating kidney are women who have borne children. All the examples which have fallen under my notice have been observed at some period after child-bearing. To what extent a difficult and protracted labour may be concerned as a cause, I am

unable to say. The powerful and prolonged contractions of the diaphragm which are incidental to such a condition would, doubtless, favour displacement of the kidney. I think, however, the circumstances which determine the liability to this affection arise rather as a result of the sudden removal of pressure which the distended uterus exercises on the kidneys in common with other organs within the abdomen. The tendency to falling forward of the viscera, as a result of the impaired support afforded to them by the abdominal walls, in a woman who has borne children, seems likely to contribute to the production of floating kidney. Feeble women, with lax and atonic tissues, are probably more subject to this abnormality than those who are more robust."

The objections raised against the theory that repeated pregnancies frequently cause this condition are—that it happens in women who have not borne children; in those who have given birth to large families few suffer from it, and that it is usually unilateral; it is not contended that pregnancy is the only cause; it must be admitted, however, to be at least a frequent one.

Landau has pointed out that about 25 per cent of the cases observed by him had pendulous belly; 13 per cent had descent of the uterus or prolapse of the vagina; 7 per cent had hernia, and 15 per cent retroflexion of the uterus; so that in all more than a half of the patients suffered from other conditions dependent upon laxity of the perineum or abdominal walls.

Another supposed cause, which has been made a great deal of by some observers, is tight lacing. Dr. Roberts quotes a passage from Cruveilhier bearing upon this point:—"I have often observed, in women who wore tight stays, the right kidney to lie sometimes in the right iliac fossa, sometimes in front of the sacro-iliac synchondrosis, sometimes even in front of the vertebral column, at the level of the adherent border of the mesentery, in the substance of which it was placed. The kidney, thus accidentally displaced, enjoys a certain mobility. This displacement arises when the pressure exercised on the liver by the stays dislodges the right kidney from the kind of niche which it occupies on the under surface of this organ." Dr. Roberts, and other eminent authorities in this country, agree with this view, while Landau considers the corset of little or no importance as a cause of movable kidney. In studying the etiology of this disease, it should not be forgotten that the forces which keep the abdominal organs in

position are not limited to what may be described as their anatomical attachments. The walls of the abdomen tend to retain the abdominal organs in position. If the abdomen be opened and the body raised upright, the liver and kidneys will fall perceptibly on account of their support being removed. The abdominal organs are very loosely bound to the parietes, and their limiting structures or capsules are easily distended, either by an alteration in the vascular condition of the organ or by morbid processes. Should the support resulting from the elasticity and resistance of the abdominal walls be removed, or, what amounts to the same thing, should the contents of the abdomen be suddenly diminished in amount, as after delivery, then the suspension of the organs rests with their anatomical attachments. In the upper and middle classes of society, women, after delivery, usually retain the recumbent posture for some time—long enough to allow the abdominal walls to regain their firmness and elasticity. It is otherwise with the poorer classes; they require, from necessity, to resume their occupations as soon as possible, not unfrequently within a short time of delivery, without proper regard to their condition. Now, it is persons in this very class who are most subject to displacements of the kidney. The great majority of the cases recorded are from hospitals, in other words, from a class of people who are poor and are not, as a rule, accustomed to what is described as tight lacing, but are wont to neglect themselves during and after delivery. If they were to use an abdominal corset after parturition, they might prevent a condition for which an article they do not wear has been popularly blamed.

I can easily understand that tight lacing might cause fixed misplacement, but, that movable kidney could result from it alone, is not admissible. Cruveilhier's remark, which I have already quoted, refers mostly to fixed malpositions, or malpositions with only slight mobility.

Oser, of Vienna, considers that pregnancy is one of the most common causes of movable kidney, and states that, amongst the poor of Austria, 10 per cent of the women who have borne children suffer from it, and Professor Bartels, of Kiel, has also found it frequently amongst working women, but attributes it to the habit of wearing tight waist strings to hold up heavy clothing.

The next question which suggests itself for consideration, is the reason why the right kidney is more subject to this abnormality than the left.

The following table is copied from Landau, and shows very

well the comparative frequency of the condition on the right, left, and both sides:—

NAMES OF THE AUTHORS.	NUMBER OF CASES.	RIGHT KIDNEY.	LEFT KIDNEY.	BOTH KIDNEYS.
Aberle, - - - - -	4	4	...	...
Rayer, - - - - -	7	5	1	1
Dietl, - - - - -	9	8	...	1
Rollet, - - - - -	22	18	3	1
Henoch, - - - - -	6	5	...	1
Guéneau de Mussy, - - - - -	12	11	1	...
Jago, - - - - -	5	5	...	...
Schultze, - - - - -	3	3	...	...
Kowatsch, - - - - -	5	5	...	...
Thun, - - - - -	4	3	1	...
Klüpfer, - - - - -	3	3	...	...
Fourrier, - - - - -	6	5	...	1
Keppler, - - - - -	11	10	1	...
Oerum-Howitz, - - - - -	34	28	4	2
Landau, - - - - -	42	39	1	2
Total, - - - - -	173	152	12	9

When the fact is known that the displacement occurs more frequently on one side of the body than on the other, one naturally seeks an explanation in the different anatomical relations of the organs on the two sides. The liver has been the organ most blamed. It is supposed that, either from its own weight, or by communicating the diaphragmatic movements, it presses down the right kidney. It is true that the liver seems more likely to cause displacement of the right kidney than the contents of the left hypochondrium to cause depression of the organ on that side; and it is to be remembered that during deep inspiration the right kidney is pushed down more than the left. Besides the presence of the liver, there are other anatomical peculiarities on the right side which deserve notice—the greater length of the renal vessels on that side, and the fact that the ascending colon is not so firmly bound to the right as the descending colon is to the left kidney, must have some effect in rendering the displacement more easy on the one side than on the other.

Rayer relates a case in which hernia of the cæcum produced movable kidney by dragging upon the peritoneum. The attachments of the peritoneum to the posterior wall of the abdomen were relaxed so as to permit the kidney to descend by its own weight.

Permanent relaxation of the abdominal attachments is one of the most frequent causes of the condition we are now considering.

In the cases of slight mobility of the kidney which I have seen in the *post-mortem* room the movement has been most frequently observed on the right side, and has been usually associated with emaciation of the body, a lax condition of the abdominal walls, and a looseness of the attachment and lengthening of the meso-colon on the right side, sometimes accompanied by lengthening of the renal vessels. In children the kidneys are, as a rule, pretty freely movable when the abdomen is opened; when the body is placed erect the kidneys may fall some distance, but when again laid on its back the organs regain their normal position.

As long ago as 1857, Oppolzer noticed that in patients suffering from movable kidney, and dying from other diseases, the kidneys when examined were found to be healthy, but in these cases "there has been observable a deficiency in the cushion of fat and a lengthening of the renal vessels," and Dr. Adams published in the same year a letter in which he said—"I remember many years ago having been requested by Dr. Langmore to examine the body of an old lady who was said then to have 'slipped her kidney.' . . . The only peculiarity remarkable was, that the kidney appeared bound down in its situation more loosely than usual, and the old lady, from having been very fat, had become somewhat thinner, and her integuments appeared very lax throughout. The condition of the kidney had nothing whatever to do with the cause of death." There is little doubt that an absorption of the fat surrounding the kidney will render the tunica adiposa more lax and loosen the attachments of the organ, stretch the renal vessels, and permit undue freedom of movement and prominence of the kidney. When emaciation has been very rapid, I have seen the kidneys so loosely attached that they could be easily drawn out in front of the spine without employing force sufficient to injure the connections.

When considering this subject, it is well to refer to a possible fallacy arising from the circumstance that the adipose tissue around the kidney becomes firm after death, so that, even in a case where the kidney was movable during life, it might become so fixed after death as to escape observation.

There are numerous cases published where the immediate cause of the mobility is clearly shown to have been some accident or event occurring in the course of life, such as jerks, causing traction of the viscera in a flaccid abdomen. The kidney may break

loose from its attachments as a result of sudden or violent concussion. This was doubtless the cause in my second and fourth cases. Henoch relates two instances in which direct violence was the exciting cause; in one the kidney became movable after a blow on the right loin, while in the other case both organs became displaced after a fall from a horse.

A consideration of the diseases most frequently associated with movable kidney may throw some light upon the etiology of the subject. I do not refer to symptoms depending upon the state of the kidney for their existence, but rather to conditions which may be traced to a common cause, such as displacement of the uterus, prolapse, or hernia of some of the viscera.

From the records of cases which I have had the opportunity of consulting, it appears that general emaciation, pendulous belly, and misplacement or diseased conditions of the uterus are the most frequent complications met with, menorrhagia and leucorrhœa are also common associates.

Landau has paid particular attention to this point, and at the end of his paper the table given in next page will be found, showing, in 45 cases, the relative frequency of the different complications of movable kidney.

By analysis of the table it will be found that 25 per cent of the patients had pendulous abdomen, 13 per cent suffered from descent of the uterus or vagina, and the same proportion were affected with cancerous disease, 15 per cent had retroflexion of the uterus, and 7 per cent had hernia.

The frequency of concurrence with displacements and diseases of the uterus, as proved by these statistics, shows that there must be some relationship in the etiology of movable kidney with these conditions, probably some disturbance of the intra-abdominal relations of pressure. The author, in referring to displacements of the uterus, uses only the term "retroflexion," so as to lead one to doubt whether or not he makes a proper distinction between the two classes of displacements, flexions and versions; in other words, does he discriminate cases where the shape of the uterus is altered, by the body being more or less acutely bent over the cervix, from those in which the uterus retains its normal shape? Concomitantly with movable kidney, the significance of retroversion is much greater than that of retroflexion.

Œdema of the lower extremities occasionally accompanies, and has been regarded by some observers as a direct result of mobility of the kidney. It seems more likely to be the effect of changes in the substance of the organ than of alteration in its position.

No.	Age.	No. of Birth.	Other Diseases.
<i>I. Movable Kidney on Right Side.</i>			
1.	36,	9,	Retroflexion of uterus.
2.	32,	7,	Pendulous abdomen.
3.	35,	6,	Do. do.
4.	33,	?	Do. do.
5.	49,	7 in 14 years,	Prolapse of vagina.
6.	47,	12,	Carcinoma of the uterus.
7.	48,	5 in 6 years,	Retroflexion of uterus.
8.	32,	3,	Pendulous abdomen.
9.	44,	7 in 9 years,	Right inguinal hernia.
10.	34,	4,	Pendulous abdomen.
11.	28,	4,	Do. do. Prolapsed uterus.
12.	32,	6 in 7½ years,	Do. do. do. do.
13.	44,	11 in 12 years,	Do. do.
14.	24,	0.	Injury.
15.	47,	0,	Ovariectomy.
16.	30,	8 in 7 years,	Retroflexion of uterus. Icterus.
17.	35,	6 in 12 years,	Pregnancy. Edema of right leg.
18.	32,	2 in 1 year,	Pendulous abdomen. Strangulation.*
19.	34,	4 in 5 years,	Pendulous abdomen. Icterus.
20.	30,	7,	Retroflexion of Uterus.
21.	58,	8 in 14 years,	Carcinoma.
22.	34,	8,	Morphinismus.
23.	39,	10.	
24.	41,	5,	Right crural hernia.
25.	38,	3,	Do. do. do.
26.	34,	9.	
27.	41,	2.	
28.	38,	?	
29.	51,	?	Retroflexion of uterus.
30.	49,	?	Do. do.
31.	52,	?	Do. do.
32.	60,	?	Carcinoma of uterus.
33.	44,	?	Do. do.
34.	40,	?	Do. do.
35.	29,	2.	
36.	68,	?	
37.	38,	3,	Descensus uteri.
38.	34,	2,	Do. do.
39.	55,	4,	{ Adhesions at the lower edge of the liver.
40.	59,	2,	{ Strangulation.* Icterus.
			Prolapse of uterus. Hydronephrosis.
<i>Movable Kidney on Left Side.</i>			
41.	40,	1,	Pendulous abdomen.
42.	36,	?	Do. do.
<i>Movable Kidney on Both Sides.</i>			
43.	25,	1.	Repeated injury.
44.	36,	0,	Phthisis.
45.	60,	?	Carcinoma of both Kidneys.

* Symptoms of Strangulation. (Einklemmungs-Erscheinungen.)

PATHOLOGICAL ANATOMY.—The changes which take place when a kidney becomes movable are limited to its surroundings; there is not necessarily any alteration in the structure of the organ, although, as seen in my third case, there may be indications of organic disease. The changes in the surrounding structures may be divided into two kinds, those involving the adipose capsule, and those affecting the attachments. In the cases of slight mobility of the kidney, which I have observed in the *post-mortem* room, there has nearly always been atrophy of the adipose capsule, and frequently the kidney moved freely within it, but in all instances the fibrous capsule was found to be normal in appearance, and not loosened from its attachments to the kidney. The adipose capsule, when it becomes atrophied, permits slight mobility of the kidney, and as a natural sequence of these movements of the organ, the capsule becomes distended, and may ultimately form a considerable sac.

The distension of the adipose capsule leads to the peritoneum covering it being loosened from its position against the posterior abdominal wall. In the second variety the adipose capsule remains adherent to the kidney, and the movement is permitted from the peritoneum having become loosened so as to form a pouch in which the kidney and its envelopes move more or less freely. We may therefore have three conditions—firstly, where the kidney moves in its adipose capsule, the capsule itself retaining its position. Secondly, where the first mentioned condition exists and the capsule also has become movable. (This is what was found in the case operated upon by me. The capsule formed a distinct sac freely movable behind the peritoneum, and the kidney was easily pushed backwards and forwards within it.) Thirdly, those cases in which the capsule and kidney are adherent, but where the peritoneum and the attachments of the capsule to the posterior abdominal wall have become relaxed.

In a considerable number of instances of movable kidney the renal arteries have been found lengthened, but normal in their origin from the aorta, unless when the condition has been congenital. Abnormal origin of the vessels seems to indicate a congenital condition, while simple lengthening of them does not prove the mobility to be other than an acquired state. Sometimes co-existing with the displacement of the kidney there are abnormalities of other abdominal organs, but this is more frequent in cases of floating kidney, to the pathology of which we shall refer hereafter, than in the condition at present under consideration.

Before considering the physical signs, diagnosis, and treatment of movable kidney, I shall give a short summary of the history of four cases which I have had under my care within the last three years. The details will be found at the end of this paper.

SUMMARY OF CASES.—CASE I. Mrs. M'M., æt. 40. Patient has had seven children and three miscarriages in twelve years. Swelling, detected by patient on the *right side* after sixth confinement, and during seventh pregnancy, was associated with considerable pain, dyspeptic symptoms, and vomiting. These symptoms were so severe that she was confined to bed during seven months previous to the birth of the child. Movable kidney detected before, but its real nature not ascertained till after delivery. Pain in *left side* after delivery (7th), but no tumour made out till some months after, when the left kidney was also found to be movable. Temporary relief from rest in bed, poultices and belladonna; unable to wear an abdominal bandage. Symptoms became worse—pain in both renal regions increased during menstrual periods, severe and persistent vomiting preceded and followed by burning pain in epigastric region, sickness, retching, and diarrhœa. Great general emaciation.

Right kidney fixed by operation (nephroraphy). Left kidney kept in position by abdominal bandage. Symptoms due to movable kidney—vomiting, sickness, loss of appetite, and pain entirely disappeared; and operation wound healed in ten days. Patient able to walk about, general health greatly improved. [The symptoms arising from the mobility of the kidney disappeared immediately after, and have not occurred since the operation, three months ago.]

CASE II.—Mr. O., æt. 49. Patient was at one time very stout, but has now emaciated considerably. He suffers from chronic bronchial catarrh, attended with muco-purulent expectoration. Slight emphysema, but no bronchiectasis. Mobility of right kidney (caused by fall on left side), is associated with sickening pain, vomiting, and diarrhœa, and occasional suppression of urine, due to strangulation of renal vessels. Patient directed to use a broad abdominal bandage; symptoms greatly relieved as long as the bandage is worn.

CASE III.—Mrs. M'D., æt. 43, enjoyed good health till birth of last child. She has had nine children and two miscarriages in fourteen years. Pain in right side, first noticed six months after the birth of her last child; at the same time she became conscious of the presence of a movable tumour in right renal

region. After some time the pain became aggravated; almost continual in right lumbar region, increased during menstruation, but becoming very severe at other times independently of ovulation. At these times symptoms of obstruction to excretion of urine are present—increase in the size of tumour, followed by symptoms of uræmia, viz., dimness of sight, severe and persistent headache, lethargy, with or without occasional paroxysms of excitement, nausea, and vomiting. Suppression of urine is followed first by excretion of a small quantity of concentrated urine, and afterwards by a copious flow of urine of a low specific gravity. The attacks co-existing with menstruation are characterized by pain of a dull dragging character, and slight dyspeptic symptoms, such as loss of appetite, sickness, occasional vomiting, and sometimes diarrhœa. In Feb. 1883 (sixteen months after kidney became loose), the movable kidney was observed to be diminishing in size, and small quantities of albumen, and hyaline and granular tube casts were found in the urine. Increased anæmia, emaciation and derangements of digestive organs were complained of. Attacks of pain more frequent. Patient urgent for an operation to be performed for her relief. Question raised as to whether the albumen in urine was derived from movable kidney alone, or from both organs. Ureters catheterized, and the urine from both found to be albuminous. Operative measures therefore not permissible. Abdominal bandage useful, but does not do more than alleviate the symptoms.

CASE IV.—J. M'D., æt. 28, single, (movable kidney, resulting from a fall). Patient was running upstairs when she fell on her right side, the edge of the step coming in contact with the right loin. Accident followed by pain; movable tumour detected soon after, on right side. Symptoms became more severe—frequent attacks of vomiting, sickness, frontal headache, and diarrhœa. No relationship between attacks and menstruation. Symptoms completely relieved by constantly wearing an elastic abdominal bandage extending from Poupart's ligament to level of the seventh rib.

PHYSICAL SIGNS AND SYMPTOMS.—In the great majority of cases the patient accidentally discovers the tumour without the attention having been directed to it by painful or other sensations. When, however, it has become known that one of the kidneys is movable, it is not uncommon to find symptoms develop which are referred to the condition of the kidney.

When the movement of the kidney is slight there may be no subjective symptoms developed, and it may be only after

death that the condition is revealed. If, however, the movement is considerable, a tumour, of characteristic renal form, may be discovered on careful palpation. The sensation communicated to the fingers by the kidney can scarcely be mistaken for that of any other kind of tumour, and it is said by some observers that pulsation of the renal artery may be felt; of the truth of this latter statement I have some doubt. The kidney forms an oblong, hard, and resisting mass, the lower extremity rounded, the surface very smooth; it is easily pushed in various directions, downwards, upwards, and laterally, and glides with great facility into the lumbar region. In most cases the abdomen is so flaccid that the organ can be easily grasped with the hand, and when it is manipulated a sickening and peculiar faint sensation, frequently accompanied by pain shooting down the thigh and lower part of the abdomen, is produced. On percussion over the renal region posteriorly, a tympanitic note may be elicited; but a dull note is not got, as might be expected, over the displaced kidney, but rather a muffled tympanitic one. This, of course, is due to the fact that anteriorly the kidney is usually, I might say always, covered by a layer of intestine. When the hand is applied to the postero-lumbar region a depression may be felt when the kidney is displaced, but when it is thrust back to its normal position the natural sense of resistance in the renal region is restored. The note heard on percussion over the renal region in cases of movable kidney shows how unreliable percussion is as a means of diagnosis as to the position of the organ, unless it is considerably enlarged. In Cases II and III displacement of the kidneys makes very little difference in the percussion note; by this means alone it would be impossible to tell when the kidney was in an abnormal position and when it was in its proper place. The sense of resistance on percussion, and the feeling communicated to the hand when it is applied to the region, give more trustworthy results. The respiratory movements may influence the position of the kidney, deep inspiration may force it down, and forced expiration cause it to ascend; while the posture of the body tends greatly to alter its situation. When the patient sits up it falls towards the pelvis, when she lies on her side it inclines towards the middle line or away from it as the case may be, and if she assumes the supine posture the organ passes back to its proper place.

As already indicated, the subjective symptoms may be entirely absent, or so slight as not to attract the attention of the patient or her medical attendant, and they may be chiefly of a local character. In the majority of cases, however, the

patient becomes conscious, often accidentally, of the presence of a movable tumour in the abdomen, and complains of a feeling of weight and uneasiness in one or both loins. The pain usually experienced is of a dull character, but may occur in severe paroxysms resembling nephritic colic, and when the kidney is manipulated or pressed upon, a sinking, sickening sensation is experienced. This sinking sensation, or as the patient calls it, a "fainting pain," is very characteristic. It is described by one of my patients (Case II) as being very much the same in character as that produced when the testicle is pressed or slightly bruised. The pain is relieved by the recumbent posture, rest in bed, opiates, and warm applications, and is increased by long sitting, walking, or any kind of exertion, by constipation, and, in females, during pregnancy and the periods of menstruation.

Symptoms of dyspepsia, loss of appetite, sickness, flatulence, colicky pain, vomiting, and diarrhœa, may be present, and the urine may be altered from time to time, both in quantity and composition, and the act of micturition accompanied by more or less pain. In Case III the patient suffers from symptoms which not only indicate a diseased condition of the kidneys, but also point to occasional torsion or flexion of the renal vessels or ureter. These symptoms usually appear suddenly when the kidney is displaced, and disappear in from twenty to fifty-six hours. They consist of suppression of urine, or great diminution in the quantity excreted, severe pain in the renal regions, sickness, nausea, and vomiting, followed by dimness of sight, severe and persistent headache, lethargy with occasional paroxysms of excitement, in other words they are the symptoms of uræmia. These subjective symptoms are associated with a rapid increase in the size of the movable tumour, and the first indication of recovery is a sudden flow of concentrated urine, followed by secretion of a large quantity of urine of a low specific gravity. In Case II the urine was on several occasions suddenly suppressed without any evident cause, the tumour was not increased in bulk, nor indeed was it necessarily out of position at the time the symptoms appeared; the urine was not altered in composition, nor were the subjective symptoms aggravated.

The details of this case will be found in the Appendix.

Hydronephrosis is often connected with movable kidney, but whether it is to be regarded as a cause or as an effect is somewhat difficult to determine. It may be both. When the kidney is moving freely about, the ureter is liable to be twisted and flexed so that the passage of urine into the bladder is

retarded or entirely prevented. When such an accident occurs the urine accumulates behind the constriction, and leads to a gradual distension of the ureter and dilatation of the pelvis of the kidney, just in the same way as when hydronephrosis results from pressure of the pregnant or retroflexed uterus. Or again, it can be easily supposed that, in a case of hydronephrosis, the kidney is more liable to become displaced than when the organ is healthy, partly by reason of its increased weight, and partly as a result of the loosening of its connections and of the peritoneum owing to its enlargement.

There are many other diseased conditions associated with movable kidney which it would be of interest to discuss here, but to do so with care would take up too much space.

DIAGNOSIS.—The diagnosis of movable kidney is, when uncomplicated by the presence of other abdominal tumours, comparatively easy, the chief errors arising from practitioners not thinking of the occasional occurrence of the disease. Movable kidney is one of those conditions which one is very apt to overlook simply because it is rarely met with in practice, and although generally recognised as a possible accident, yet the contingency is not taken into consideration in diagnosing the case. Thus, cases are upon record where a movable kidney was mistaken for a spleen, an enlargement of the liver, an abscess, a malignant tumour, or a tumour of the ovary.

In stout individuals, a class of persons in whom movable kidney is not at all frequent, the condition may be difficult to detect by physical examination, but in the great majority of cases the presence of a movable tumour can be easily made out. We have already described the physical signs, so that it is unnecessary again to refer to them further than to say that it is almost entirely upon a proper apprehension of them that the diagnosis of the case rests.

The diseased conditions with which movable kidney is most apt to be confounded are enlargement of the gall bladder, small ovarian tumours, tumours of the mesentery, and tumours of the omentum.

An enlarged gall bladder may sometimes be mistaken for a movable kidney. Mr. Lawson Tait mentions a case upon which he operated, where the diagnosis of movable kidney was made, but which proved ultimately to be one of enlarged gall bladder, containing about a pint of thick, glairy mucus, and eighty gall stones of small size. The tumour was freely movable, it seemed solid, and was shaped like a kidney. It was tender on pressure, and when the hips were raised above

the level of the shoulders it could be made to disappear. There was no jaundice.

The points in the physical diagnosis which would distinguish an enlarged gall bladder from a movable kidney are these, the position which it occupies, the fact of the lower part of the tumour being more freely movable than the upper, of the lower end being more rounded, and less resistant on pressure, and the presence of an occasional sense of fluctuation; if in addition to these there be evidences of obstruction to the gall ducts, such as jaundice, absence of bile in the stools, &c., then the probability is in favour of the former condition.

Small ovarian tumours, such as fibro-myomata, located either on the surface or in the substance of the ovary, might lead to some difficulty in diagnosis. The size and form of the mobile body, if possible tracing the tumour to its attachment, and the tendency to increase in size or remain stationary, will help to clear up the case. When the ovarian tumour is large, a mistake in diagnosis is not likely to be made. A collection of fæces in the colon may, at first sight, appear to resemble movable kidney.

The conditions most apt to be confused with, and most difficult yet necessary to discriminate from movable kidney, are small pedunculated tumours of the mesentery or omentum. The smoothness of surface, the ease with which the tumour slips into the lumbar region, the peculiar sickening pain on pressure, the shape and size, the detection of the hilus, the absence of the kidney from its normal position, and the fact that the tumour does not increase in size, indicate the existence of a movable kidney rather than a swelling caused by some form of new growth.

TREATMENT.—When the nature of the case has been distinctly made out by a careful physical examination, the indications for treatment are sufficiently clear. If, however, the disease is not properly understood, as seems frequently to be the case, not so much from the difficulty in diagnosis as from the possibility of such a malposition not having been brought under the attention of the medical attendant, the patient may be subjected to utterly useless, troublesome, and sometimes injuriously active treatment.

In some persons the inconvenience experienced from displacement of the kidney is not considerable, and very little treatment is required; indeed, in many instances, the symptoms produced are so slight that the condition has been

discovered by the patient quite accidentally, and independently of them. In others, disagreeable impressions may only be felt while the patient is moving about or engaged in active employments; when in bed she may enjoy immunity from pain and other symptoms. There are cases, however, where the functions of the neighbouring organs are greatly interfered with, and severe pain is produced by the displacement of the kidney, so that the patient is unable to perform ordinary household duties, or life may even be endangered.

So far as the physical condition is concerned, the evident indication is to endeavour to replace the organ in its normal position and keep it there. With the patient in the recumbent posture, the kidney should be replaced by manipulation and gentle pressure. This is usually very easily accomplished; the difficulty is to keep it in position without exerting undue pressure on it, or upon the neighbouring parts. Various methods have been proposed—tight bandages or belts round the abdomen, with a pad over the kidney to give the pressure more pointed effect, elastic bandages applied in a similar way, and trusses, have all been employed for the purpose of fixing the kidney by external support.

The tight bandage (calico or woollen) seems to me to be of very little service; it very soon becomes slack, and falls out of position.

Dr. Smith of New York has devised a truss for retaining the organ in position. It resembles a hernia truss, except that the spring is straight instead of oblique, and is made long enough for the posterior pads to rest on the side of the spinal column, opposite to that on which the displacement exists. On the posterior end of the truss there are four small pads so placed that two rest on each side of the spinal column, and on the anterior end a soft rubber air pad is fixed, which may be blown up by a tube attached to it, and made either tense or flat, as may be required.

Whether a bandage or a truss be employed, it is necessary that it should be applied in such a manner that the patient can keep it on continuously without complaint, otherwise it is of little or no use. Even though the symptoms disappear for the time being, if the patient suffers from the pressure of the appliance, she will soon throw it off.

The method of employing pressure which I have found most useful, and most easily applied by the patient, is to have a well fitting abdominal elastic bandage, extending from the line of Poupart's ligament to the level of the sixth or seventh

rib. The bandage should be made to fit the body accurately and firmly, but without exerting undue pressure at any point. It may be made of one piece, or, what I consider much better, of strips of elastic bandage sewn together, and united in the middle line in front by means of steel slips similar to those used to fix stays. The patient should have her bowels well opened every morning, and then, before getting up for the day, should slip over the lower extremities, and upwards around the abdomen, a tight-fitting jersey, applying over the region of the kidney a hair pad, and then buckling over it the broad elastic bandage.

With this treatment two of my cases (II and IV) are almost free from pain, and are able to take a considerable amount of exercise.

To patients suffering from this affection, all forms of exercise involving active or sudden movements of the body, such as running, dancing, jumping, or travelling over rough roads, must be strictly forbidden, and even long continued standing or much walking should be avoided. The following remarks by Dr. Roberts are of value :—

“If there be anæmia, or other disorder of the general health, the removal of this by appropriate remedies is of course to be attempted. Restoration of the tone of the abdominal muscles, which, in most cases, are relaxed and flaccid, is probably the most effective means of reducing to a minimum the inconveniences which attend on mobility of the kidneys. To this end, ferruginous and other tonics, and shower baths, with avoidance of fatiguing exercise, seem to be the means best adapted. A curious case is recorded by Dr. Hare, in which the mobility of the kidneys was markedly diminished after two pregnancies; the steady pressure of the gravid uterus having apparently acted as a mechanical support to the dislodged organs.

“The regulation of the bowels is a point to be carefully attended to. Accumulation of faecal matter in the large intestines invariably aggravates the inconveniences of movable kidneys. Tight lacing and all violent modes of exercise (equitation, dancing) should of course be strictly forbidden.

“When the symptoms of so-called strangulation of the kidney occur—violent pains, sickness, frequent micturition, enlargement and excessive tenderness of the tumour—complete repose, in the recumbent posture, should be prescribed during the attack; hot poultices, or even leeches, should be applied over the seat of pain, and morphia administered internally.”

Operative Treatment.—There are instances where the patient cannot bear any form of mechanical appliance to her abdomen, pressure seems, in fact, to increase rather than alleviate the symptoms, and even when the bandage is permissible, it cannot be expected to do more than temporarily fix the kidney. The organ is fixed so long as the pressure is applied, and is thereby prevented from coming in contact with, or dragging upon, other parts within the abdomen, and in this way the pain and uneasiness are, for the time being, relieved. To some the relief is but partial, and to all it is but temporary. The surgeon is, therefore, sometimes required to consider the question of operative interference. When severe symptoms are not ameliorated by other means, or if the patient has comparative comfort only when strict attention is paid to certain conditions, the irksomeness of which renders life miserable and useless, then the urgent demands of the patient make it necessary that something should be done to cure the disease or palliate suffering. Some authorities regard operative interference as unjustifiable, whether the operation consists of removing the organ by abdominal section, or by an extra-peritoneal incision in the lumbar region, or of the milder course of transfixing and stitching the kidney to the abdominal wall. When the patient is able to move about, or sit up in comparative comfort, with the assistance of an elastic bandage, then an operation should not be thought of. But it is otherwise when little or no relief is derived from milder modes of treatment. When severe pain is experienced, extending to the lower part of the abdomen, and felt also in the course of the crural nerves, in the loin, thighs, and genitals, increased by any exertion, or even by movements in bed, sometimes amounting to paroxysms resembling nephritic colic, and occasionally accompanied by fainting, sickness, and persistent vomiting, then I do not see why the only chance of relief should be denied to the unfortunate sufferer.

I. *Nephrectomy.*—Keppler claims that a movable kidney is a continual menace to the life of the patient, and that the danger should be removed by the excision of the organ as soon as detected. Landau, on the other hand, believes that it seldom threatens life, and regards nephrectomy as unjustifiable. Of late years, great advances have been made in regard to operations on the kidney, but still the mortality from nephrectomies is very high. It must not be forgotten, however, that in most of the cases operated upon, one or both organs were the seat of organic disease; and it is well to bear in mind that, when the excision is performed in such cases, the increased power of

secreting urine is not demanded from a healthy kidney, where compensatory hypertrophy may be readily established, but from an organ probably unable to perform more than its own share of the work. Nephrectomy for organic disease is one thing, extirpation of the kidney, on account of its mobility, is another.

The following table, prepared by Dr. Harris of Philadelphia, shows the operations that have been performed up to the 15th of March, 1882.

Of the sixteen cases of movable kidney, recorded in the accompanying table, ten of the patients recovered and the remainder died, and of these latter one suffered from sarcomatous disease, another from encephaloid cancer, and a third from fatty degeneration of the kidney. So that, in only three can the kidneys be described as healthy. That is to say, out of thirteen cases where a healthy kidney was excised three died, thus giving a mortality of twenty-three per cent. In the other diseased conditions calling for the operation, the mortality was almost exactly fifty per cent, and in not a few of them both kidneys were found to be diseased. The high mortality in such cases can be easily understood. For many years it has been a recognised fact that animals can live, without their health being impaired, after one of their kidneys has been excised, so long as the remaining organ is healthy. It has also been satisfactorily shown that a man can afford to lose one half of his urine-secreting tissue. When one kidney is excised, as a rule, the urine is immediately diminished in amount by a half; but if the other kidney be healthy, its secreting power is greatly increased, so that, within a few days, a normal quantity of urine is excreted. When the operation is called for in cases of pyelitis, hydronephrosis, or local injury strictly limited to one side, it should be performed; but in cases of malignant disease, and tuberculosis of the kidney, where the probability is that both organs are involved, then the operation of excision is a very questionable procedure.

In cases of movable kidney, where the organs are the seat of organic disease, unless the diseased condition be strictly limited to the movable kidney, the operation seems unjustifiable, on the ground of the very high mortality; and where the case is one of uncomplicated movable kidney, then extirpation should not be thought of till nephroraphy has been tried and failed. It is not right to excise an organ so necessary to life as the kidney, before making an endeavour to save it by a less heroic operation. Excision should only be employed when all other measures have failed, and life is seriously threatened.

No.	Date.	Operator.	Locality.	Sex	Age	Seat of Incision	Diseased condition of the subject operated upon.	Died.	Recovered.
1	June 4, 1861	E. B. Wolcott	Milwaukee, U.S.	M.	58	Abdomen	Encephaloid kidney. Diagnosed a cyst of the liver.	D.	
2	June 26, 1867	Spiegelberg	Breslau	F.	42	A.	Hydatid cyst of kidney. Diagnosed an ovarian cyst. <i>Removal incomplete.</i>	D.	
3	April, 1868	Peaslee	New York	F.	..	A.	Solid renal tumour. Diagnosed an ovarian growth.	D.	
4	April 2, 1869	Simon	Heidelberg	F.	46	Loin	Flistula of ureter produced in an ovaro-hysterectomy; kidney not diseased.	..	R.
5	Nov. 15, 1869	Esmarch	Kiel, Ger.	F.	19	A.	Large cyst of kidney, with pelvic adhesions; diagnosed ovarian.	D.	
6	?	Reported by S. Wells	London	F.	..	A.	Fibro-cystic tumour of uterus, with an adherent normal kidney.	D.	
7	Dec., 1870	Gillmore	Mobile, U.S.	F.	30	L.	Painful movable shrunken fibrous kidney; woman 5 months pregnant, and went to full term.	..	R.
8	Mar. 23, 1871	Von Bruns	Wurtemb'rg	M.	..	L.	Gunshot wound of kidney converting the organ into a large abscess.	D.	
9	June, 1871	Meadows	London	F.	..	A.	Large cyst of kidney. Diagnosed ovarian.	D.	
10	Aug. 8, 1871	Simon	Heidelberg	F.	30	L.	Small Fibrous kidney containing blood-clots. Diagnosis, calculous pyelitis.	D.	
11	May 14, 1872	Durham	London	F.	43	L.	Painful kidney; organ appeared healthy; nephrotomy had failed to give relief.	D.	
12	May 16, 1872	G. A. Peters	New York	M.	36	L.	Tuberculous kidney. Diagnosis, calculous pyelitis; other kidney found diseased on autopsy.	D.	
13	Jan. 7, 1873	Brandt	Klausenberg Austria	M.	25	L.	Extrusion of kidney through a knife wound in the loin.	..	R.
14	Dec. 2, 1873	Campbell	Dundee, Scotland	F.	49	A.	Cyst, involving lower third of kidney; presumed ovarian.	..	R.
15	Apr. 14, 1875	Le Dentu	Paris	M.	42	L.	Hydronephrosis and perinephritic abscess.	..	R.
16	1875	Marraud	Algiers	F.	y'ng	L.	Extrusion of kidney through a wound with a yataghan.	..	R.
17	Dec. 7, 1875	Langenbuch	Berlin	F.	32	L.	Sarcoma of kidney (?) Organ of a sack form; not examined microscopically.	..	R.
18	?	Langenbuch	Berlin	M.	20	A.	Painful floating kidney.	..	R.
19	Apr. 20, 1876	Kocher	Bern	F.	35	A.	Sarcomatous floating kidney. Colon and contiguous parts involved. <i>Removal incomplete.</i>	D.	
20	July 4, 1876	Hüter	Greifswald, Germany	F.	4	A.	Sarcoma of left kidney; weight nearly 5 pounds. Presumed a splenic or ovarian growth.	D.	
21	July 18, 1876	Billroth	Vienna	F.	46	A.	Hydronephrosis. Presumed an ovarian cyst.	D.	
22	?	Hamilton	China	M.	..	L.	Extrusion of kidney through a knife wound.	..	R.
23	Jan. 7, 1877	Jessop	Leeds, Eng.	M.	2½	L.	Encephaloid kidney; died of a return of the disease in nine months.	..	R.
24	Jan. 28, 1877	Heath	London	F.	24	A.	Calculous hydronephrosis; presumed to be ovarian.	D.	

No.	Date.	Operator.	Locality.	Sex	Age	Seat of incision	Diseased condition of the subject operated upon.	Died.	Recovered.
25	Aug. 6, 1877	Dunreicher	Vienna	M.	33	Loin	Sacculated and dilated kidney; diagnosed a calculous pyelitis.	D.	
26	Sep. 27, 1877	Kocher	Bern	M.	2½	Abd'm.	Adeno-sarcoma of kidney.	D.	
27	Feb. 18, 1878	Müller	Oldenburg, Germany	M.	21	L.	Calculous hydronephrosis.	..	R.
28	Mar. 14, 1878	Byford	Chicago, U.S.	F.	39	A.	Encephaloid kidney; 4½ pounds.	..	R.
29	Mar. 15, 1878	A. Martin	Berlin	F.	49	A.	Painful floating kidney; found healthy in appearance.	..	R.
30	Aug. 15, 1878	A. Martin	Berlin	F.	30	A.	Painful floating kidney; no appearance of disease.	..	R.
31	Nov. 14, 1878	A. Martin	Berlin	F.	25	A.	Painful floating kidney.	..	R.
32	Dec. 9, 1878	A. Martin	Berlin	F.	53	A.	Sarcoma of kidney, 2½ oz.	..	R.
33	Jan. 9, 1879	Zweifel	Erlangen	F.	29	L.	Utero-uterine fistula, after labour, with atrophy of the kidney.	..	R.
34	Jan. 19, 1879	Czerny	Heidelberg	M.	59	A.	Malignant tumour of kidney. Aorta ligated to arrest hæmorrhage.	D.	
35	April 1, 1879	Billroth	Vienna	F.	35	A.	Retro-peritoneal myofibroma with a sound kidney attached. Presumed to be an ovarian cyst.	D.	
36	April, 1879	Urbiniati	Cesena, Italy	F.	56	L.	Calculous pyelitis.	D.	
37	Apr. 19, 1879	A. Martin	Berlin	F.	43	A.	Painful floating kidney.	D.	
38	May 22, 1879	Czerny	Heidelberg	F.	82	L.	Fistula and pyonephritic abscess.	..	R.
39	June 23, 1879	A. W. Smyth	New Orleans U.S.	F.	35	L.	Painful floating kidney.	..	R.
40	June 24, 1879	A. Martin	Berlin	F.	24	A.	Painful floating kidney.	D.	
41	July 17, 1879	E. Martini	Hamburg	F.	37	A.	Painful floating kidney.	..	R.
42	Aug. 11, 1879	Lossen	Heidelberg	F.	37	A.	Angio-sarcoma attached to a sound movable kidney; woman pregnant; aborted in 12 hours.	..	R.
43	Oct. 6, 1879	Czerny	Heidelberg	F.	37	A.	Hydronephrosis.	..	R.
44	Oct. 24, 1879	Merkel	Nürnberg	F.	28	A.	Painful floating kidney, affected with fatty degeneration.	D.	
45	Nov. 4, 1879	Bardenheuer	Cologne	F.	46	L.	Pyonephrosis and fistula.	..	R.
46	Nov. 23, 1879	Bardenheuer	Cologne	F.	22	L.	Pyonephrosis and abscess.	D.	
47	Dec. 23, 1879	A. E. Barker	London	F.	21	A.	Encephaloid floating kidney.	D.	
48	Jan. 3, 1880	Thornton	London	F.	7	A.	Hydronephrosis of left kidney.	..	R.
49	Jan. 16, 1880	Savage	London	F.	56	A.	Hydronephrosis.	..	R.
50	Feb. 17, 1880	Lucas	London	M.	36	L.	Pyonephrosis, with lumbar fistula.	..	R.
51	Mar. 9, 1880	Czerny	Heidelberg	M.	23	L.	Hydronephrosis, with sarcoma.	D.	
52	April 3, 1880	Czerny	Heidelberg	F.	27	L.	Utero-vaginal fistula of right side; kidney not diseased.	..	R.
53	Apr. 24, 1880	Couper	London	F.	y'ng	L.	Saccular and dilated kidney containing fetid pus.	..	R.
54	May 3, 1880	Czerny	Heidelberg	F.	40	A.	Hydronephrosis of right kidney; lived 48 days.	D.	
55	May 15, 1880	Czerny	Heidelberg	F.	23	L.	Calculi in left kidney; pelvis dilated.	..	R.
56	May 19, 1880	Credé	Dresden	F.	26	L.	Utero-uterine fistula.	..	R.
57	May 20, 1880	Le Forte	Paris	M.	23	L.	Lumbar renal fistula; kidney very slightly altered.	D.	
58	May 24, 1880	F. Lange	New York	F.	47	L.	Cystic kidney containing concretions; other kidney found useless on autopsy.	D.	
59	May 29, 1880	Spiegelberg	Breslau	F.	27	A.	Enlarged kidney, not apparently altered in structure. Diagnosed a hydronephrosis.	..	R.
60	July, 1880	Raffa	Rovigo, Italy	F.	20	L.	Suppurative nephritis, with purulent infection and tuberculosis. Lived four months.	..	R.

No.	Date.	Operator.	Locality.	Sex	Age	Seat of incision	Diseased condition of the subject operated upon.	Died.	Recovered.
61	July 5, 1880	A. E. Barker	London	F.	32	Left	Calculus pyonephrosis.	D.	
62	July 20, 1880	A. Martin	Berlin	F.	..	Abd'm.	Painful floating kidney.	D.	
63	Aug. 2, 1880	Czerny	Heidelberg	F.	11 mo.	A.	Large adenoma of left kidney.	D.	
64	Aug. 19, 1880	J. H. McClelland	Pittsburg, U.S.	F.	20	L.	Calculus pyo-hydronephrosis, with fistula in lumbar and inguinal regions.	..	R.
65	Oct. 3, 1880	Bardenheuer	Cologne	F.	48	L.	Cancer of uterus, involving the left ureter.	D.	
66	Oct. 5, 1880	A. E. Barker	London	F.	38	L.	Calculus pyonephrosis.	D.	
67	Nov. 28, 1880	A. Martin	Berlin	F.	..	A.	Painful floating kidney.	..	R.
68	1880	Langenbuch	Berlin	F.	30	A.	Painful floating kidney.	..	R.
69	?	Bardenheuer	Cologne	..	5	L.	Pyonephrosis.	..	R.
70	Jan. 10, 1881	Czerny	Heidelberg	F.	35	L.	Pyonephrosis of right kidney.	..	R.
71	Jan. 30, 1881	Clementi	Catania, Italy	F.	26	L.	Pyonephrosis of left kidney.	..	R.
72	Feb. 22, 1881	W. M. Baker	London	F.	7	L.	Tuberculosis of kidney.	..	R.
73	Feb. 22, 1881	Stockwell	Bath, Eng.	M.	54	L.	Sacculated and enlarged kidney. 10 oz.	D.	
74	Apr. 23, 1881	Czerny	Heidelberg	M.	51	L.	Angio-sarcoma of left kidney.	..	R.
75	?	Barwell	London	F.	16	L.	Pyonephrosis.	D.	
76	May 5, 1881	Barwell	London	M.	18	L.	Calculus pyelitis and retro-peritoneal abscess.	..	R.
77	May 7, 1881	Czerny.	Heidelberg	F.	45	A.	Sarcoma of lower part of left kidney.	D.	
78	?	1881	Bardenheuer	Cologne	..	..	Hæmaturia and renal colic	..	(?) ¹
79	?	1881	Bardenheuer	Cologne	M.	20	Renal calculus and pyonephritic abscess.	..	(?) ¹
80	?	1881	Bardenheuer	Cologne	M.	26	Sarcoma of kidney.	..	(?) ¹
81	June 17, 1881	Czerny	Heidelberg	M.	52	L.	Calculus hydronephrosis	D.	
82	July 14, 1881	Godlee	London	F.	57	A.	Calculus pyelitis.	D.	
83	July 24, 1881	Rosenbach	Göttingen	M.	42	A.	Calculus pyelitis.	..	R.
84	July 25, 1881	Czerny	Heidelberg	M.	40	L.	Sarcoma of left kidney.	..	(?) ¹
85	Aug. 2, 1881	F. A. Kehr	Heidelberg	F.	32	A.	Hydronephrosis.	..	R.
86	Aug. 3, 1881	Starek	Danzig	F.	42	L.	Wound of ureter in removing cancer of the uterus; nephrectomy 6 days later	..	R.
87	Sept. 5, 1881	Whitehead	Manchester	M.	46	A.	Solid tumour of left kidney. 1 lb. 4 oz.	D.	
88	Sep. 10, 1881	Hicguet	Leige, Belg.	F.	6	A.	Sarcoma of kidney.	..	R.
89	Oct. 15, 1881	T. G. Thomas	New York	F.	21	A.	Fibro-cyst involving kidney.	..	R.
90	Oct. 23, 1881	G. Lepold	Leipsig	F.	23	A.	Blood-cyst of lower part of left kidney.	..	R.
91	Nov. 1881	Fratina	Ponderone, I.	F.	28	L.	Pyonephrosis of left kidney.	D.	
92	Nov. 1881	O. O. Burgess	San Francisco	M.	53	A.	Large cystic tumour of kidney.	D.	
93	Dec. 1881	H. Marsh	London	M.	35	L.	Cystic kidney. Removal incomplete. Other kidney found sound, on autopsy.	D.	
94		Lücke	Germany	M.	60	..	Carcinoma of kidney; other kidney contracted and cystic.	D.	
95	?	Baum	Danzig	F.	..	..	Hydronephrosis of left kidney.	D.	
96	?	1882	Golding Bird	London	M.	yn'g	Tuberculosis of kidney.	D.	
97	?	1882	Heywood Smith	London	..	..	Hydronephrosis.	(?)	
98	Mar. 10, 1882	James Adams	London	M.	..	L.	Medullary sarcoma, with hæmaturia, presumed a calculus pyelitis.	(?)	
99	Mar. 11, 1882	Thornton	London	F.	..	A.	Pyonephrosis of right kidney.	..	R.
100	Mar. 15, 1882	Thornton	London	..	..	A.	Cystic, suppurating kidney. 4 lbs. 7 oz.	..	R.

¹ These have generally been credited in the column of *recoveries*, although I cannot find any record to that effect.

II. *Nephroraphy*.—When I saw my first case of movable kidney, in 1880, with Dr. Yair, I proposed not to excise the kidney—an operation I then knew had been done several times for the disease from which she was suffering—but to stitch it to the abdominal wall. At that time, however, I did not feel justified in urging her to have the operation performed, as I still entertained some hope of relief being derived from external appliances, and, besides, the operation of nephroraphy had then never been performed to my knowledge. Stitching the kidney, by means of sutures, to the abdominal wall, seemed in itself a less dangerous operation than excision, and the future prospects more favourable.

About a year after this, Dr. E. Hahn published, in the *Centralblatt für Chirurgie* for 23rd July, 1881, his first two cases—"In one case there was a strong suspicion that in one kidney, and possibly not the floating one, there was a calculus, while in the other, both kidneys were movable."

His first operation was performed, in April 1881, upon a woman, æt. 38, unipara, who suffered from severe pain, associated with movable displacement of the right kidney, and with a suspicion of a renal calculus on the right side. In the second case, the patient suffered from similar symptoms, and both kidneys were found to be movable, the right, however, more so than the left. The first case was quite successful, the second partially so.

The operation consisted of cutting down upon, but not opening, the capsule of the kidney, by an incision made along the edge of the sacro-lumbalis muscle, from the lowermost rib to the crest of the ilium. The adipose capsule was drawn into the wound and stitched to the muscle and fascia by six or eight catgut sutures.

In one of his cases the kidney became movable after the operation, so that Dr. Hahn now recommends more secure fixation by opening the capsule and stitching it to the more superficial tissues at a point corresponding to the lowest limit of the area of mobility, so as to avoid straining the adhesions when the patient stands upright.

The operation performed by Dr. Hahn seemed capable of removing all the disagreeable symptoms resulting from mobility of the kidney; by the posterior incision the peritoneum was not opened, and above all the patient was not deprived of any of her urine secreting tissue. The only fault the operation appeared to have was that it did not fix the kidney securely enough, as in one of the cases the organ became again slightly movable after the operation, and for this reason Dr.

Hahn recommended that the capsule should be divided, and the edges secured to the surface of the wound.

In cases where the kidney is not movable within its adipose capsule, but simply floats about behind the peritoneum, an operation such as Hahn has performed may be sufficient, but when the adipose capsule has become separated, and forms a sac in which the kidney moves freely, something more requires to be done.

In my first case I found that on opening the adipose capsule the kidney was easily pushed backwards and forwards within it. I therefore found it not only necessary to stitch the edges of the open capsule to the wound in the abdominal walls, but also, in order to secure the kidney, to pass two sutures through the cortex, and fasten them externally by means of buttons. The details of the operation will be found in the appendix, Case I.

The objects in such an operation appear to me to be (1) to reduce the size of the cavity in which the kidney moves, (2) to fix the kidney and the walls of the sac to the abdominal parietes, and (3) to form adhesions between the kidney and the capsule surrounding it. When the adipose capsule is very loose, and the kidney moves freely within it, a portion of the capsule should be removed before stitching its edges to the wound in the parietes; by doing this the cavity is reduced in size, and the chances of future mobility are thereby lessened. The divided capsule should be stitched firmly either to the deep or to the superficial edges of the wound in the loin by not less than eight chromic catgut sutures, and two strong sutures of the same material should be passed through the abdominal walls, then through the cortex of the kidney, and out again through the muscles, fascia, and skin, on the other side of the incision. The sutures passed into the kidney become destroyed more rapidly than elsewhere; the living renal tissue seems to have an unusual power of absorption. The chromic catgut which I used was kindly given to me by Dr. William Macewen, and he informed me that it would probably last for a month or six weeks in the tissues. This I quite believe would be the case in any other tissue but the kidney; but the sutures in my case separated on the fourteenth day, and on examination I found that the portions which passed through skin, fascia, muscle, and even granulation tissue, were firm and strong, whereas the parts which had been in contact with the renal tissue were softened, and partly absorbed. It is therefore necessary to use a strong suture, and one that has been kept for a long time in chromic acid, for operations where the kidney is involved in the stitch.

With the object of forming a firm union between the parts it is well to allow any blood which may escape after the adipose capsule has been opened to remain in the latter, and so fill up any space that may be left between it and the kidney. I did this in my case, and have had no reason to regret it. When the case is kept aseptic, the blood clot readily becomes organised into connective tissue, and so forms a bond of union between the adipose capsule, the kidney and the granulation tissue uniting the two edges of the wound. The deep edges of the wound should be kept wide apart by a large drainage tube, so as to allow a considerable mass of granulation tissue to form between these surfaces and the convex surface of the kidney.

Up to the present time the operation of nephroraphy has been very successful, no deaths having occurred as a consequence of it, and in some of the cases the suffering of the patient has been completely relieved; in others the symptoms have been modified considerably.

The following table includes the cases of the operation which I have been able to collect up to the present time:—

No.	Date.	Operator.	Locality.	Sex.	Age.	Kidneys Movable.	Result.
1.	10th April, 1881.	Hahn,	Berlin.	F.	28,	Both,	Complete cure after two operations.
2.	14th " "	Hahn,	"	"	38,	Right,	Cure.
3.	1882.	Hahn,	"	?	?	?	Good.*
4.	"	Kiister,	"	?	?	?	" *
5.	"	Esmarch,	"	?	?	?	" *
6.	September, 1882.	Bassini,	Pavia,	F.	27,	Right,	Cure.
7.	November, "	Weir,	New York	F.	33,	Right,	Cure.
8.	March, 1883,	Newman,	Glasgow,	F.	40,	Both,	Cure.

From the results shown in this table the operation cannot but be regarded as satisfactory, no deaths having occurred; and in all the cases the movements of the kidney have been prevented, and the symptoms from which the patients suffered previous to the operation have disappeared.

The advantages of nephroraphy over extirpation of the kidney are numerous, and may be briefly stated:—

* These cases are mentioned in a report of the Deutsche Gesellschaft für Chirurgie, XI Kongress, published in a supplement to the *Centralblatt für Chirurgie*, 1882, No. 29. The operations are mentioned, but no details are given further than that they were successful as far as could be judged, considering the short time that had elapsed since they were performed.

1. In the operation of nephroraphy the organ is not removed, so the secreting tissue is not diminished in amount as it is in excision, and there is therefore no danger of removing, as has been done, the only kidney the patient may be possessed of.

2. The mortality in excision, even in cases where the remaining kidney was healthy, is not very encouraging (23 per cent), whereas, in eight cases operated upon by nephroraphy there have been no deaths.

3. Nephroraphy may be performed when both kidneys are movable, or when one of them is diseased. In one of Hahn's cases the kidney, which was not displaced, contained a calculus. This did not prevent the operation being successful.

4. In stitching the kidney to the abdominal wall the peritoneum is not opened, as it is in the anterior operation for excision, where the membrane is incised at least twice.

5. Extirpation is only permissible when nephroraphy has failed and the patient's life is still seriously threatened, or when the movable kidney is diseased and the fixed kidney healthy.

The importance of the latter point was illustrated in Case III, where one of the kidneys (the right one) was known to be diseased; it diminished in size under observation, and albumen, and granular and hyaline tube casts were found in the urine. In this case the movable kidney was diseased, the patient's sufferings were great, and she was urgent that an operation should be performed for her relief. The question then arose, was the diseased condition limited to the movable kidney? if so, then an operation for its removal might be justified, but should the other kidney prove also to be involved, operative interference was out of the question.

The only accurate method of determining this appeared to be to catheterise both ureters and examine the urine from each kidney separately. This was done, and both organs were found to be diseased. The idea of operating was therefore abandoned.*

In all cases where excision of a kidney is contemplated, the most careful examination should be made regarding the condition of the kidney on the opposite side, and where it is at all practicable the ureters should be catheterised, as the most certain means of determining whether or not the remaining organ is healthy.

In women catheterisation is very easy, while in men com-

* Details of the method adopted in catheterising the ureters will be found in the Appendix, Case III.

pression of the ureters may be practical without great difficulty. Compression is not so reliable as passing a catheter, but in the male the practical difficulties of the latter operation are so great with means at present at our disposal, that it must be given up as infeasible.

FLOATING KIDNEY.

At the beginning of this paper, displacements of the kidney were divided into two forms. In the one the organ was described as being movable behind the peritoneum (movable kidney), in the other the kidney was attached to the spine by a meso-nephron, and lay within the cavity of the peritoneum, where it might move to the extent of its mesentery (floating kidney).

Objections may be raised to this division of the subject, seeing that, as a matter of custom, the two terms are used synonymously by most writers, and that, clinically, the two conditions are not distinguishable from one another. It is only after the abdomen is opened that the presence or absence of a meso-nephron can be demonstrated. It is necessary, however, from the surgical standpoint, particularly when operative interference is contemplated, to carefully separate the two conditions from one another. In movable kidney the organ can be exposed without opening the peritoneum, whereas, in floating kidney, it cannot. These varieties of displacement are recognized, not only by being distinct anatomically, but also in their etiology being different. Floating kidney is always a congenital condition, whereas movable kidney is usually acquired. Oppolzer and the earlier writers on the subject looked upon elongation of the renal vessels as a proof of the affection not being acquired; they, however, did not distinguish between the two forms, but grouped all displacements of the kidney associated with mobility in one class. The etiology of movable kidney has been already fully discussed. It will now be necessary to make only a single remark regarding the causation of floating kidney.

Cases where the kidney moves by reason of the existence of a meso-nephron are very rare, so uncommon, indeed, that such writers as Lawson Tait, and Jago are disposed to doubt the possibility of such an occurrence. That it may exist has been already shown; it is not necessary, therefore, again to discuss the question.

Floating kidney, as already stated, is always a congenital condition, and the existence of a meso-nephron is not uncommon.

monly associated with other malpositions of the peritoneum, or of other abdominal organs. The following case, reported by Mr. Durham, illustrates this point:—

“Upon opening the abdomen of J. C., æt. 34, it was at once noticed that the left kidney was situated lower down and nearer the middle line than usual; the descending colon was also nearer the middle line, and formed no sigmoid flexure in the left iliac fossa, but passed across the last lumbar vertebra, and entered the pelvis on the right side of the sacrum.

“Upon slightly pressing the kidney, it slipped at once into its normal situation, and upon further examination it was found to be movable to a most remarkable extent. By changing the position of the body, or by gentle manipulation, the kidney was caused to pass, according to circumstances, quite up under cover of the ribs, across to the front and slightly to the *right* side of the bodies of the vertebræ, or down into the iliac fossa. This mobility appeared to depend principally upon the unusual disposition of the peritoneum, which was associated with the misplacement of the colon. Instead of passing over the anterior surface of the kidney, and then forming the descending mesocolon, the peritoneum from the side of the spinal column only just touched the lower part of the inner border of the kidney, and then, having been reflected over the descending colon, touched the lower part of the outer border of the kidney, as it passed on to line the side of the abdominal cavity; and again, the ‘lesser sac of the peritoneum’ extended behind the spleen, and as low down as the upper border of the kidney. Thus, the kidney, instead of being fixed in its position by a single layer of peritoneum over its anterior surface, was placed, as it were, in the middle of three diverging layers, none of which could afford much support.

“Before any of the viscera were injured or removed, the trunk of the subject was exhibited to the Society, and careful diagrams were made of the disposition of the viscera, and of the various positions which the kidney could be made to assume by mere motion of the body.

“Upon dissection, it was found that there was little or no fat in the lumbar region, and that the kidney was consequently only surrounded by very loose cellular tissue. To this circumstance, doubtless, must be attributed, in great part, the remarkably prominent appearance of the kidney when the abdomen was laid open. The renal artery was somewhat longer and thinner than usual. The kidney itself was rather small, but of perfectly healthy structure. No other anatomical peculiarities than those already described were met

with. No history of the recognition of the mobility of the kidney during life could be obtained."

It would, indeed, be difficult to explain how a meso-nephron, properly so called, could be formed otherwise than congenitally, unless by supposing that the displaced kidney has pushed before it a fold of peritoneum, the surfaces of which have become adherent around it, and united to each other along the line of the renal vessels. That such a condition might arise as a result of localized peritonitis seems possible; there are, however, no cases recorded where there is any evidence of this having taken place. When inflammation has occurred in cases of movable kidney, it has in most instances led to an adhesion of the layers of the peritoneum, not only to the kidney and to one another, but also to the surrounding parts, the result being that the kidney ceased to be movable, and became fixed in an abnormal position.

The point of importance to be attended to in connection with floating kidney is that it cannot be reached by an operation from behind without opening the peritoneum, and is therefore not so favourable for nephroraphy as movable kidney. This should be borne in mind while operating. It is not possible, however, previous to the operation, to distinguish, by physical examination, the two conditions.

Some authorities have expressed the opinion that floating kidney is more freely movable than movable kidney, and use this as a basis for diagnosis. This is an error. In not a few cases of movable kidney, the kidney can be pushed with perfect freedom up under the ribs, down into the pelvis, and for a short distance across the middle line. What greater freedom of movement could be shown? It is true that in some instances of movable kidney the excursion may be limited to an up-and-down motion in a plane parallel to the lumbar muscles. This is seen when the sac in which the kidney moves is formed by the adipose capsule, without the capsule being detached from its seat behind the peritoneum. Where, however, the peritoneal covering has become raised from the posterior abdominal wall, then less impediment is offered to movement, and so what was clearly at first a case of movable kidney gradually may assume the physical signs of the more mobile form, and may pass, according to some observers, from the class of movable kidneys into that of floating ones.

Fortunately, floating kidney is a very rare condition, but nevertheless it must not be entirely overlooked where an operation is contemplated for the cure of the more common variety of displacement with mobility.

APPENDIX.

CASE I.—Mrs. M'M., æt. 40. The history of this case practically commences fifteen years ago, when she gave birth to her first child. From that time she has not enjoyed her previous good health. For some time she suffered from no well defined complaint, but experienced undue fatigue after slight exertion. Between the birth of her first and second children, a skin eruption (psoriasis) appeared, first on the ankles, but soon afterwards it spread to the legs, abdomen, chest, and hands. It disappeared, however, when she again became pregnant. Following the birth of her second child, she had two miscarriages, each at the third month, and a third at the fourth month, between the birth of the fourth and fifth children. After the birth of the third child, she made a very poor recovery and suffered from a vaginal discharge for fully four months. On rising from bed soon after this, the third delivery, she suffered from a pain in her right side, but did not observe any swelling. The pain was usually of a burning character, but, during menstruation and when she again became pregnant, the pain was more severe and occurred in paroxysms.

After a confinement in May, 1877 (sixth pregnancy), a swelling was detected on the right side by the patient, although the exact nature of the tumour was not made out by her medical attendant. For the last seven months of her last pregnancy (seventh), she was compelled to remain constantly in bed in consequence of the severe pain in the right side, which became much worse whenever she attempted to rise. The pain was usually accompanied by sickness, retching, and vomiting during the three months preceding delivery. After delivery the pain was less severe, and the sickness and vomiting were not so constant.

It was shortly before her last delivery that I first saw her, with Dr. Yair, of Kilcreggan, who suspected the presence of a "floating kidney;" but, owing to the pregnancy, it was very difficult to make out the exact condition of matters. A tumour, however, was detected on the right side, freely movable, which receded under the lower ribs on pressure and fell down again when the patient was placed on her right side.

After the child was born, I saw her on several occasions, when it became quite evident that the case was one of movable kidney. At this time (1880) I raised the question of

cutting down on the kidney and stitching it to the abdominal walls; but, after careful consideration, Dr. Yair and I agreed that it would be better, in the meantime, to try what effect a continuation of milder treatment might have; and, as she could not be dealt with satisfactorily at home, we arranged to have her sent to the Western Infirmary, where she was placed under the care of Dr. Finlayson. The following short extracts from the Ward Journal will give an idea of her condition while she was in the hospital. "On palpating the abdomen, when she lies on her left side, a movable tumour may be felt in the right hypochondrium, kidney shaped, smooth on the surface, and with pressure may be moved about, up under the lower ribs, and down towards the pelvis, but never past the middle line." . . . "Patient has been mostly confined to bed, up sometimes for a day or two, but never many days in succession. Her inability to be up seems to depend upon the occurrence of pain in the right side, in the region of the kidney, and she finds that she cannot allow anything to press upon it." . . . "Patient has been suffering from increased severity of the pain on the right side. This condition she connects with the function of ovulation; as for the last few days she has been menstruating."

After she had been in the hospital for some time, she appears to have suffered considerably from menorrhagia and leucorrhœa, arising from granular ulceration of the os and cervix. The symptoms, however, soon disappeared under treatment.

From 1880 till 1883, she was in the wards of the Western Infirmary on three occasions. The first time for a month, during which period she improved considerably. The psoriasis almost entirely disappeared, and the symptoms referrible to the movable kidney considerably improved, so much so that, on her return home, she attempted to perform her household duties, but in a short time these proved too much for her, so that in a month she was in very much the same condition as formerly.

I again saw the patient at this time (July, 1881) and Dr. Yair informed me that since the birth of her last child she had been complaining of a pain in the left side. During her residence in the Western Infirmary this pain did not trouble her, and no swelling or tumour was detected on the left side; but on her return home, and after several weeks' attention to household work, this pain became considerably increased, and on examination the left kidney also was found to be displaced. The mobility of the left kidney is not so great as that of the

right, but when it is displaced it gives rise to more severe symptoms. By September 1881, she was worse than ever. The sickness, retching, vomiting, and diarrhœa had returned. Paroxysms of pain in the neighbourhood of the displaced organs, and radiating in the direction of the loins, thighs, and round the lower part of the belly, were frequent and severe. As the patient at this time appeared to receive no permanent relief from any treatment, I again proposed operative interference, but she preferred to try another course of treatment in the Western Infirmary, as she had considerably benefited by her former residence there. The following is a short summary of the notes made in Dr. Finlayson's Journal during her second period of treatment in his wards.

Confined to bed on account of pain in region of kidneys, increased on pressure and aggravated during menstrual period. Hysteria, associated with fits accompanied by giddiness and sometimes loss of consciousness. Slight feverishness, accompanied by a trace of albumen in urine, which soon disappeared. Suffering from menorrhagia and leucorrhœa, ulceration of os and cervix; symptoms relieved by administration of liq. ergotæ and application of carbolic acid to cervix. Severe and persistent vomiting, preceded and followed by burning pain in epigastric region, on left side and behind left shoulder, constant pain in right lumbar and iliac regions increased on pressure, and relieved by flexion of limbs on abdomen. Temporary relief from poultices, fomentations. Morphia, chloral, and bromide of potassium had little or no effect in producing sleep, and increased vomiting. Most relief from poultices and belladonna. Unable to wear an elastic bandage; pressure increases pain and other symptoms.

Patient was so ill during the latter portion of her stay in the Infirmary that Dr. Finlayson had almost despaired of her life, and asked her to consider whether or not she would submit to have her kidney stitched. This proposal, however, seemed to frighten her, as she left the Infirmary soon after.

I again visited her at Kilcreggan in the beginning of March 1883, and noticed a considerable change for the worse since I had last seen her. It seemed now quite evident that nothing more could be done in the way of treatment short of operative interference. She had not been out of bed for fully two years, unless while she was being conveyed to or from the Infirmary. Her life was rendered miserable by constant vomiting, sickness, and the pain which she suffered when the kidney became displaced, and she was rapidly emaciating from want of nourishment. I therefore felt justified in urging her to submit

to an operation, and having consented to this, she was brought up to the Training Home for Nurses a few days after.

The physical signs were not much altered from what was observed previously. The condition was as follows:—The abdominal walls were thin and flaccid, so that the kidneys, particularly the right, when displaced, could be grasped with the hand and their form easily made out. The right kidney was most movable, so that when patient sat up or lay upon her left side the organ fell forwards, or if the hand was thrust into the loin the kidney was easily pushed forward and grasped, but generally resumed its normal position when the pressure was withdrawn. It was easily moved up under the ribs, downwards into the pelvis, and about two inches to the left of the middle line in front. The left kidney was not so easily displaced as the right, and its mobility was not so great. It moved readily upwards and downwards, but not farther forwards than a line drawn between the centre of Poupart's ligament and the left nipple. When the organs were displaced there was slight flattening in the renal regions. The percussion over the tumours was dull tympanitic.

On the 29th of March the operation of nephroraphy was performed.

About ten minutes before the anæsthetic was administered, a sixth of a grain of morphia was injected hypodermically. Anæsthesia was produced by chloroform, and all antiseptic precautions were attended to. The patient having been placed on her left side, an incision was made in the right loin, immediately external to the outer edge of the quadratus lumborum, and extending from the lowermost rib to the crest of the ilium, care being taken to avoid the diaphragm and pleura above, and the peritoneum in front. The tissues were divided down to the mass of fat surrounding the kidney, which was found to be freely movable behind the peritoneum. The kidney was not in position while I was cutting down upon the capsule, but was situated behind the anterior edge of the liver. As soon as the abdominal walls were divided Dr. Donald Macphail, who assisted me, thrust his hand into the wound, and by a little manipulation succeeded in pushing the kidney into the incision, and retaining it in position. Two sutures were then passed through the adipose capsule, so as to retain it in position. The adipose capsule was then divided for a distance of about three and a half inches, and the convex border of the kidney was exposed. The kidney was easily pushed backwards and forwards within the adipose capsule, but the thin fibrous capsule was not loosened. The organ appeared to be

perfectly normal. Two thick chromic catgut sutures were passed deeply into the cortex of the kidney so as to include its whole thickness. The needle entered the anterior surface, and passed out from the posterior aspect about half-an-inch from its convex margin. One suture was passed through the upper and the other through the lower part of the organ, and the kidney was allowed to slip back into the sac formed by the adipose capsule. The edges of this capsule were now carefully stitched to the deep edges of the wound in the parietes, and the sutures (8) cut short. Three superficial sutures were then introduced, and the sutures through the kidney were also passed through the muscles, fascia, and skin; the kidney was then drawn into position and a large drainage-tube placed between the convex margin of the kidney, which now filled the bottom of the wound, and the superficial stitches. These stitches were then tied and the sutures through the kidney were secured externally by means of buttons.

The hæmorrhage during the operation was insignificant in amount. On piercing the kidney some blood escaped from the needle wounds, and flowed into the adipose capsule. This was allowed to remain in the hope that it would become organised, and so render the union of the parts more complete. The coaptation of the external lips of the wound was made as perfect as possible, while the deeper parts were kept separate by a large drainage-tube, in order that a considerable granulating surface might form in contact with the body of the kidney.

The wound was dressed with iodoform and antiseptic gauze, and an elastic bandage applied round the abdomen.

Immediately after the patient recovered from the effects of the anæsthetic, a sixth of a grain of morphia was administered hypodermically. She bore the operation well.

The treatment consisted of the administration of small quantities of brandy and beef tea, a teaspoonful of each alternately every half-hour.

It is not necessary to enter into detail as to the minutiae of the further course of the case, which was highly satisfactory. It will be of more interest to indicate in a general way the subsequent events.

The external wound was completely united on the tenth, and the deep stitches came away on the fourteenth day. There was no suppuration at any time either from the surface or from the deeper parts. The drainage-tube was gradually shortened after the eighth day, and the antiseptic dressings were discontinued on the fifteenth.

Only on one occasion (on the second day) did the temperature reach 100° F., and only on three occasions was it over 99° F. The pulse was never more than 90, indeed very seldom over 80 per minute.

The condition of the urine was remarkable in so far that it remained almost perfectly normal during the whole course of the case. The following table will show the quantities for the first ten days after the operation.

	Quantity.	Sp.Gr.	Urea.	REMARKS.
Mar. 29,	23 oz.	1025	2·1 p. c.	Strictly normal.
„ 30,	17 oz.	1027	2·2 „	Suspicion of a trace of albumen. No blood
„ 31,	24 oz.	1024	2·0 „	No albumen or blood. Deposit of urates.
April 1,	15½ oz.	1026	2·2 „	„ „ „ „
„ 2,	23 oz.	1024	2·1 „	„ „ „ „
„ 3,	20 oz.	1024	2·0 „	„ „ „ „
„ 4,	25 oz.	1023	2·0 „	Normal.
„ 5,	27½ oz.	1023	1·9 „	„
„ 6,	?	1022	1·8 „	„
„ 7,	24 oz.	1026	2·0 „	„

During the time these observations were made the patient was taking very little food, the quantity being reduced as much as possible for fear of causing vomiting. This accounts for the smallness in the quantity of urine.

On the 30th, the day after the operation, Dr. Middleton, who attended the case for some time along with me, was suspicious of a slight trace of albumen, but really the indication of it was so slight that we could not be certain of it.

By carefully regulating the diet vomiting was completely prevented. The first time she did vomit was on the 14th of April, after taking an egg for breakfast, which she blamed for causing it. The symptoms referrible to the movement of the right kidney have never troubled her since the operation, but she still complains of the left kidney occasionally, when she is without a bandage round the abdomen.

I made the following note on the 1st of June:—

Since the operation, patient has not complained of pain in the right kidney. On palpating the abdomen, a mass somewhat larger than the kidney can be felt, firmly united to the abdominal walls, a little in front of the external cicatrix. When pressed firmly upon, the patient says that she does not suffer any pain, but experiences a sickening sensation. The

left kidney is still movable, and causes occasional trouble when it becomes displaced; this, however, seldom occurs, as it can be kept in good position by a broad bandage.

For the last few days she has been suffering from leucorrhœa and pain in the region of the uterus, and yesterday she began menstruating. Since menstruation commenced she has complained of slight pain in the left kidney, but of none in the right.

Since the operation her general health has greatly improved, and she is now able to be up for six hours, and for the last ten days she has walked about the ward in comparative comfort. She has been wearing a broad elastic bandage, extending from the line of Poupart's ligament to the level of the seventh rib; while she has it on she can move about with freedom, but when it is off the left kidney is apt to become displaced.

[Since the operation was performed, now three months ago, she has been free from the symptoms arising from mobility of the right kidney, and is now able to walk about with comfort. She had not been out of bed, except to be taken to the Infirmary, for two years previous to the operation.—23rd June, 1883.]

CASE II.—W. O., æt. 49. For the last three years patient, who was at one time very stout, has been emaciating. He has suffered a good deal from chronic bronchial catarrh, attended with considerable muco-purulent expectoration which, on microscopic examination, is found occasionally to contain a few blood corpuscles, and a considerable quantity of pus. The physical signs are indicative of chronic bronchitis, accompanied by slight emphysema, without bronchiectasis.

The history of the case, as far as the movement of the kidney is concerned, dates from the beginning of last year (1882). He was out riding one day, when his horse stumbled, and he fell on his left side and fractured two of his ribs (the 9th and 10th left). He was kept in bed for about a fortnight after the accident. During this time he complained of a pain on the right side, immediately below the edge of the liver. The practitioner attending him at that time suspected an abscess, and treated him accordingly. While he remained in bed he did not notice any swelling or tumour on the right side, but after he got up he discovered a movable tumour seated in the hypochondriac region.

I saw this patient for the first time about nine months ago.

He then complained of an occasional sickening pain in the right renal region, attended with vomiting, and sometimes followed by diarrhoea. The pain usually came on suddenly, and lasted for five or six hours. He noticed that if he took much exercise, or if the bowels were constipated, he was more apt to have an attack; when he took to bed the symptoms soon disappeared, but, on the other hand, if he continued to take even moderate exercise, the pain caused him considerable inconvenience.

On examination I found him greatly emaciated—the belly was loose and pendulous; palpation of the abdomen revealed the presence of an oval tumour immediately under the lower edge of the liver, and about two inches from the umbilicus. The tumour could be freely moved about in the abdomen, and pushed down into the pelvis, upwards under the edge of the liver, and an inch to the left of the middle line. Percussion over the right renal region, or over the tumour, did not yield any satisfactory results; but when the right loin was examined, the kidney having been previously displaced, a distinct flattening could be made out. When the tumour was handled a sickening sensation was experienced, resembling, as the patient informed me, the pain produced when the testicle is squeezed. A careful examination was made with the object of detecting the pulsation of the renal artery, as this case appeared to be a very favourable one for this purpose on account of the thinness and looseness of the abdominal wall, but no trace of movements resembling pulsation could be made out.

The only other symptom worthy of notice is the occasional sudden suppression of urine, without any very evident cause, and without any apparent relation to the position of the right kidney. Sometimes it commences without the organ being displaced, at least so far as can be detected by the hand, and there is no increase in the size of the organ during the time this symptom is present. The only explanation I can give for the scanty secretion of urine is to suppose that the kidney is rotated on its short axis, so that the ureter and blood-vessels are coiled round one another, and the passage of blood to and from the kidney is thereby prevented. The urine passed when the secretion has again become active does not differ from what is voided at other times. The following table will show the quantities and specific gravity of seven samples collected during one of the attacks. There was no urine passed between 11 A.M. on the 28th and 1 A.M. on the 29th of November:—

		Quantity.	Sp. Gr.	Urea.	REMARKS.
1882.					
Nov. 28,	7 A.M.,	10 oz.	1015	1·75 p. c.	Slight deposit of urates.
"	11 A.M.,	8 oz.	1017	1·85 "	" " "
Nov. 29,	1 A.M.,	3 oz.	1016	1·7 "	Considerable deposit of urates
"	3 A.M.,	10 oz.	1019	1·9 "	" " "
"	8 A.M.,	6 oz.	1014	1·5 "	No deposit. " "
"	1 P.M.,	7½ oz.	1014	1·55 "	" "
"	5 P.M.,	10 oz.	1018	1·7 "	" "

It is interesting to contrast the symptoms and physical signs in this case with those of Case III.

Patient was directed to see that the tumour was in its normal position while in bed, and before rising to put on a close-fitting thin jersey and a broad elastic bandage round the waist, as was ordered for Case No. III, and an air ring-pad was fastened to the jersey immediately over the kidney. The effect of this treatment, together with careful attention to the general health, has been remarkable. The sickness, vomiting, and attacks of diarrhoea have now ceased, and the pain scarcely ever troubles him; but when it does it is usually rather severe; symptoms of suppression of urine still occur, but are not so frequent as formerly. If the bandage is left off for any time the symptoms are certain to return. I saw this patient about a month ago; he has had comparative relief from the pain, and the other symptoms almost never trouble him.

CASE III.—Mrs. M'D., æt. 43, enjoyed good health till after the birth of her last child (9th). Her last delivery was followed by symptoms which, at the time, were not very well understood, owing to their vague character. Within fourteen years she had nine children, all still alive, and two miscarriages, the first at the fifth month, between the birth of the third and fourth children, and the second, at the fourth month, between the birth of the eighth and ninth children. After the last delivery, she experienced sensations of vague uneasiness, not amounting to actual pain, but sufficient to prevent her from engaging actively in her household work. She became thin and anæmic, and menstruation, although regular, was profuse, and accompanied by an unusual amount of discomfort. About six months after the birth of her last child she complained of a pain, and at the same time became conscious of the presence of a movable tumour on her right side. Handling the tumour did not increase the pain very much, but caused her to become

sick, and sometimes even to vomit. A few months later the pain became more severe, and dyspeptic symptoms manifested themselves. These symptoms were most marked during the menstrual periods, after taking exercise, and when the bowels were constipated.

When I saw her for the first time, in December 1881, nine months after her last delivery, the symptoms had become aggravated, so that she required to remain in bed while she was menstruating. On examination of the tumour on the right side, its nature became apparent. It was easily made out to be a movable kidney, as it presented all the characteristic physical signs which I need not here mention in detail. I examined the urine carefully, and found it to be strictly normal.

The following note was made on the 14th December, 1882: The symptoms are now very marked. Patient complains of almost continual pain, usually localized in the right lumbar region, but sometimes extending over the abdomen. It is greatly aggravated during menstruation, but becomes very severe at other times quite independently of ovulation. At these periods other symptoms are present, which seem to indicate obstruction to the excretion of urine. They generally appear very suddenly, and usually follow some sudden exertion at a time when the kidney is misplaced. They may last only for a few hours and disappear almost as suddenly as they arose, or they may endure for a period of twenty-four or even fifty-six hours. The first indication of one of these attacks is a sudden diminution in the quantity of urine excreted, sometimes amounting to an almost total suppression of it. The suppression of urine is followed by a rapid increase in the size of the movable tumour in the abdomen, which on these occasions occupies a position a little to the right of the middle line, with its lower border about an inch above the inner third of Poupart's ligament. The symptoms here referred to are different from those that are present during the menstrual periods; they consist of severe pain in the renal region, coming on in paroxysms and lasting for some time, accompanied by sickness, nausea, and vomiting. Their severity varies considerably in different attacks; sometimes they are relieved by rest in bed for a day, at other times they last longer, and are followed by symptoms of uræmia, such as dimness of sight, severe and persistent headache, and lethargy, with or without occasional paroxysms of excitement.

During the time these symptoms are present the quantity of urine is greatly diminished. The first indication of recovery

is a sudden flow of concentrated urine, and a diminution in the size of the renal tumour, followed by the secretion of a large quantity of urine of a low specific gravity.

The following is a short note of the examination of the urine before, during, and after one of these attacks:—

1892.		Quantity	Composition in 1,000 parts.					
			Urea.	Uric Acid.	Phosph. Acid.	Chlorides.	Other Solids.	Total.
Dec. 9, -	10 A.M.	10 oz.	19·3	·41	1·95	10·1	5·2	36·96
„ 9, -	7 P.M.	8 oz.	36·3	·54	2·61	12·	6·3	57·75
„ 9, -	7·40 P.M.	18½ oz.	11·1	·19	·73	4·	2·1	18·12
„ 9, -	10 P.M.	16 oz.	12·3	·2	·61	5·3	3·	21·41
„ 10, -	1 A.M.	9 oz.	16·1	·5	1·3	11·	3·	31·9
„ 10, -	7 A.M.	7 oz.	23·4	·5	2·5	10·2	3·4	40·0

It will be observed that the specimen collected at 10 A.M. was practically normal. About noon the attack commenced, and continued till about 7·30 P.M. At seven o'clock, eight ounces of concentrated urine were passed, containing very nearly six per cent of solids, and at twenty minutes to eight, eighteen and a half ounces of dilute urine, containing less than two per cent of solids, were collected. In none of the samples examined could any abnormal constituent be detected, and, on microscopic examination, nothing was observed worthy of note. The explanation of the condition of the urine is rather difficult. If we suppose that the suppression of urine is due to torsion of the renal vessels or of the ureters, then it would be expected that this condition would be limited in its effects to the movable kidney, and that the opposite kidney would perform double duty, and so prevent symptoms of defective elimination of urine. The increase in the size of the movable tumour at the time the symptoms are present, and its disappearance before they are relieved, indicate very clearly that the attacks are due to obstruction to the flow of urine through the ureters, rather than to a suppression of the secretion as a result of strangulation of the renal vessels. The flow of a quantity of concentrated urine just before the symptoms disappear, and the simultaneous reduction in the size of the tumour, are easily associated as results of a common cause—the relief of the obstruction. The concentration of the urine seems to be due to absorption of a portion of the water contained in it during its lodgement in the distended ureter and pelvis.

It seems very extraordinary that what appear to be

symptoms of uræmia, should occur so suddenly and be removed immediately after the obstruction to the ureter has been relieved. That a patient can live for eleven days without any kidney tissue, the only kidney she had having been removed, has been demonstrated by a case of Dr. Polk's, of New York, and the fact that, during a considerable portion of that time, no symptoms of uræmic poisoning manifested themselves, renders it all the more remarkable that, in my case, immediately after the suppression of urine, symptoms closely resembling uræmia should appear.

The attacks which accompany menstruation differ from those occurring along with suppression of urine. The pain is not so sharp, does not occur in paroxysms, is of a dull dragging character, and is not accompanied by other than slight dyspeptic symptoms, or symptoms referrible to the condition of the uterus.

17th February, 1883.—Since last report patient has had two attacks associated with suppression of urine. The first was a mild one, the latter, which happened on the 15th inst., was very severe and continued for three days.

A physial examination of the abdomen, made to-day, shows the kidney to be rather smaller in size than it was when I first examined it (January, 1882), and the movements are somewhat increased; when grasped with the hand, the sensations experienced by the patient are more disagreeable than they were formerly. The most important fact to be noted is the appearance of small quantities of albumen in the urine, which is now more copious than it was a month ago; its sp. gr. is low (1008-1012), and it occasionally contains a few hyaline and granular tube casts.

The anæmia is more marked than it was formerly, the features are pinched, the derangements of the digestive organs, loss of appetite, nausea, and irregularities of the bowels are more complained of than they were a few months ago.

Instead of giving the detailed account of the case as I have it recorded, I will give a general summary of the facts as noted from the beginning of this year till the present time.

Urine.—Since the beginning of the year the urine has been copious, of a low specific gravity, and containing a variable quantity of albumen. There was considerable difficulty in ascertaining regularly the exact quantities passed in the twenty-four hours, but as far as can be learned, they were considerably above the normal. On several occasions the whole of the urine was kept and carefully measured, when it was found to amount to from 70 to 90 oz. On no occasion,

except after the attacks described above, has the specific gravity exceeded 1014. The average for the last five months is 1011, and the minimum 1007. The albumen varies in quantity from time to time, and is even sometimes temporarily absent. It has never been found to exceed .210 per cent, and as a rule does not amount to more than .08 per cent. The deposit in the urine is slight, composed of finely granular epithelium, mucus, leucocytes, and occasionally contains hyaline or granular tube cast.

The Movable Kidney.—The kidney has shown a general tendency to diminish in size, so that at the present time (June, 1883) it appears to be about a third less than it was in January, 1882. It continues freely movable, and when displaced, does not recede so easily into its normal position as it did at one time. During the first five months of this year patient had four attacks of severe pain, accompanied by suppression of urine, besides the inconvenience she has experienced during the periods of menstruation, and the sense of general discomfort from which she suffers at all times. About a month ago she was very anxious that I should operate upon her, as she was convinced, if the kidney was fixed, that she would enjoy her usual good health. The treatment both during the attacks and in the intervals procured her a certain amount of relief, but with this she was not contented, but desired something to be done that would cure her of her complaint.

The presence of albumen and tube casts in the urine was a very serious complication. The fact, however, that the right kidney was contracting gave rise to some hope that it alone was diseased, and that the left kidney was still healthy and in a condition to take up double duty if required.

Before entertaining the question of an operation, it was necessary to establish beyond doubt that the left kidney was healthy, and with this object in view, I considered the various ways by which it might be done. There was not much difficulty in being tolerably sure that there was a left kidney, as evidence of its presence in its normal situation was pretty clear. The point to settle was whether or not it was normal. The only method of determining this seemed to be to procure by some means separate samples of urine from each ureter. This might be done in two ways—either by catheterisation of the ureters, or by compression of one of the ureters, while the other was allowed to remain patent. The method recommended by Glück, to ligature the ureter of the diseased kidney, to inject a solution of iodide of potassium, and examine the urine

passed from the kidney supposed to be healthy, although a certain method, is a very dangerous one.

There are two methods by which the ureter may be compressed—(1) to press on it by the hand or a rounded lever in the rectum, as it crosses the common iliac artery on the left side, or the external iliac on the right side; (2) as suggested by Polk, by enclosing the ureter between the finger in the rectum, and a catheter in the bladder. The latter method seems to me to be the one most easy of application, and most likely to yield accurate results.

Dr. Polk describes it as follows:—"The method I have to suggest is, to compress the ureter. I confess it is easier of performance in the female than in the male, but I believe it can be accomplished in both. Take a large catheter, made of some substance like block tin, bend it to the shape of a Sim's sigmoid catheter; let the curve that passes into the bladder be as decided as it can be made, and yet not so great as to interfere with the ready passage of the instrument into the bladder. Suppose it to be the right ureter you desire to close. Introduce the instrument; then place the patient in the lithotomy position. Now carry two fingers as far into the rectum as possible.* Now place the catheter so that its curve in the bladder hugs the right pelvic wall; the end of the curve will pass directly across the line of the right ureter. Now press the fingers against the catheter, and the ureter will be sufficiently occluded to prevent all escape of urine. By means of the catheter in position (it may be double) you thoroughly cleanse and empty the bladder. As fresh urine flows in from the other ureter, it can be withdrawn and tested. As urine from a sound kidney is secreted at about the rate of a minim in four or five seconds, it will not require long continued pressure to secure the amount of urine necessary for satisfactory examination. In the female the procedure is more certain of accomplishment than in the male, because we can, in a measure, fix the base of the bladder by traction upon the anterior vaginal wall by means of a tenaculum hooked into it just below the cervix, or, better, well to the right of the cervix, on the lateral wall, the traction being downward and to the patient's left."

The advantages of catheterisation of the ureters over the compression of them, as a means of procuring two separate samples of urine—one from each kidney—seem apparent. If the ureters were constant in their position under all conditions, compression would be easy of application and certain in its

* An instrument curved and grooved to receive the catheter might be substituted for the fingers for counter-pressure.

results. But they are not so. The state of the bladder and bowel, as regards expansion, the situation of the uterus in the female, individual peculiarities, and other circumstances, alter the relations of the ureters, so that the operator might imagine that he was occluding one of them, while all the time the urine from both kidneys was flowing into the bladder.

When the bladder is well illuminated, the orifices of the ureters are easily seen, as narrow oblique slit-like openings about two inches apart from one another. These openings are situated at the posterior angles of the trigon, nearly an inch and a half from the inner orifice of the urethra, and are united by a curved elevation, which, however, extends a little beyond them. The elevation referred to corresponds in position to the anterior lip of the os uteri externum.

The method which I adopted was to introduce into the bladder a small electric lamp connected with a battery composed of two Grove's cells. The electric lamp (Fig. 1, A) is

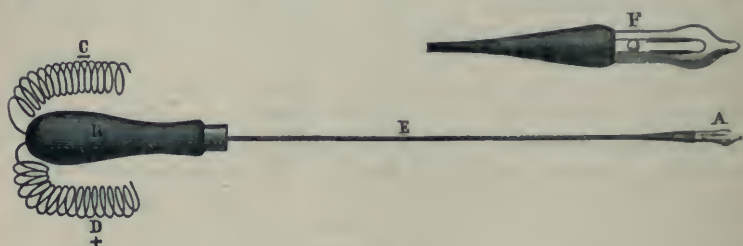


FIG. 1.

F. Electric lamp, full size. A, B. Lamp and handle, $\frac{1}{2}$.

connected with the handle (B) by a thin rod (E), in which the wires from the battery run. The lamp, when connected with two Grove's cells, gives light equal to one candle.



FIG. 2.

Speculum, G. Cover (to protect glass disc and facilitate introduction) in position, ready for introduction into bladder. Size, $\frac{3}{4}$.

The rest of the apparatus consists of a speculum and the catheters. The speculum is represented in Figs. 2 and 3. It is a hollow cone, made of vulcanite, the apex (H and J) of which is movable, and the small end of the remaining portion

(G) is closed with a small glass disc. The apex is rotated out of its place by a handle (L).

The method of using these instruments is as follows:—The bladder is first washed out with a warm solution of boracic



FIG. 3.

Cover (J) rotated by handle (L). In position after it has been introduced into bladder. Size, $\frac{3}{4}$.

acid, so as to remove all the urine. It is now distended with eight ounces of the boracic acid solution, and the electric lamp is introduced through the urethra without being connected with the battery. It is important that the lamp should be introduced before the circuit is completed, as if this precaution be not taken, the lamp is apt to become heated, and may crack when it is passed into the fluid contents of the bladder. Two gum-elastic catheters (No. 2) should now be passed, and after them the speculum is introduced with the cover (H) in position, as represented in Fig. 2. The current is now passed through the lamp, the cover (J) of the speculum is rotated, as represented in Fig. 3, and on inspection the structures forming the floor of the bladder are easily seen. The speculum should be passed so far into the bladder that the small end, closed by the glass disc, is about a quarter of an inch beyond the inner orifice of the urethra. The ureters are easily seen, and may be catheterised. The bladder is then allowed to empty itself, the catheters being retained in position, and the urine drawn off from each kidney separately. This method is of course only applicable to female patients, but may be used for any purpose where it is found necessary to examine the interior of the bladder.*

But to return to the case. As already indicated, a hope was entertained that the movable kidney alone was diseased, and that the left was still healthy and in a condition to do

* This instrument, although it performs its purpose well, is not perfect. I have been experimenting upon the dead body, and find that it will be of advantage to make certain modifications upon its present form. I may state that the catheters used have an eye at the point instead of at the side.

double duty should excision of the right organ be found advisable. The following note on the condition of the urine shows that an operation such as excision of the right kidney was out of the question, and that even nephroraphy would be attended with great danger to the life of the patient.

Urine from right kidney three hours after it was drawn off:—Pale straw colour, slight deposit, neutral reaction, sp. gr. 1012, urea, 1·10 %, albumen, 35 %; no blood, bile pigments, or sugar. Microscopic examination showed the deposit to be composed of mucus, a few leucocytes, granular and fatty epithelium, but no tube casts could be detected.

Urine from left kidney:—Pale straw colour, slight deposit, neutral reaction, sp. gr. 1010, urea, 95 %, albumen, 38 %; no blood, bile pigments, or sugar. Microscopic examination revealed, in addition to the deposits found in the other sample, the presence of fatty, finely granular, and one or two epithelial tube casts.

CASE IV.—J. M'D., æt. 28. When I saw this patient for the first time she informed me that about eighteen months before, while running upstairs, she fell upon her right side, the edge of the step coming in contact with the right loin. Soon after the accident she noticed a small movable lump on her right side, and suffered pain in the renal region, slight at first, but afterwards becoming more severe, so that she had to take to bed for a few days. Since that time the pain has been always present, but till about a week before I saw her it was never so severe as to compel her to give up her employment as a tablemaid. Six months ago, however, she had a severe attack of vomiting, accompanied by more or less pain in the region of the right kidney. These symptoms continued more or less till about two months ago, and were sometimes associated with a sickening sensation, frontal headache, palpitation, and diarrhoea. Menstruation was regular. There does not appear to be any relationship between the symptoms described above and the catamenia. Patient's general health appeared to be good. Her attention was, as far as I could learn, first directed to the tumour by the pain.

On physical examination I found a movable kidney on the right side. The sensation communicated to the hand conveyed the idea of the presence of a firm, resistant, smooth, rounded mass within the abdomen. Handling the tumour did not increase the pain, nor did it give rise to a sickening sensation. The position of the kidney was greatly influenced by the posi-

tion of the patient: when she lay on her left side it fell a little to the left of the middle line; when she sat up it dropped into the pelvis; and when she lay upon her back it resumed its normal position in the lumbar region.

The only point which raised a doubt in my mind as to the nature of the tumour, was the statement by the patient, that she thought it had increased, and was still increasing in size.

The urine was strictly normal.

The patient being a servant in a large family, it was found inconvenient to treat her at home, so I recommended her to go to the Western Infirmary, where she remained, in Professor Gairdner's wards, from the 18th of January till the 24th of February 1882, when she was dismissed improved. The treatment adopted by Dr. Gairdner was to apply a ring-pad to the tumour, and a close fitting pair of stays were made by Mr. Hilliard to keep it in position. The patient at first derived considerable comfort from this, and was able to walk about without pain. She called upon me, however, a few months later, as ill as ever; the old symptoms had returned, and the stays afforded her little or no relief. On examining them, however, I found that they had become quite slack. I therefore ordered her to have an elastic bandage made, and to wear it in place of the stays, and when it became loose, to get a new one.

She is now using a broad abdominal elastic bandage, made of strips of roller bandage sewn together, and united in the middle line in front by means of a steel slip. Since she began to wear it she has not suffered from any of her former symptoms.

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REVIEW.

A System of Surgery, Theoretical and Practical, in treatises by various authors. Edited by T. HOLMES, M.A. (Cantab.), and J. W. HULKE, F.R.S. Third edition; in three volumes; with illustrations. London: Longmans, Green & Co. 1883.

(Second Notice.)

THE second part of vol. I is devoted to *Local Injuries, General*, including Burns and Scalds, Accidents from Lightning, General Pathology of Fractures (this article contains an interesting account of the subject of Fat Embolism), General Pathology of Dislocations, and Gunshot Injuries. The third part is taken up with Injuries of Special Regions—the Head, Back (including the Spinal Cord), Face, Neck, Chest, Abdomen, Pelvis, Upper Extremity, and Lower Extremity.

Vol. II includes Diseases of the various Organs—viz., Of the Organs of Special Sense, of Innervation and Locomotion, of Respiration and Digestion, and of the Skin; and contains articles on Diseases and Injuries of the Eye, Diseases and Injuries of the Ear, Affections of the Muscular System, Diseases and Injuries of Nerves, Locomotor Ataxy, Orthopædic Surgery, Diseases of Bones, Diseases of Joints, Diseases of the Spine, Surgical Diseases connected with the Teeth, Diseases of the Mouth, Pharynx, and Œsophagus, Diseases of the

Tongue, Diphtheria and Croup, Diseases of the Nose, Diseases of the Larynx, Diseases of the Intestines, Hernia, Diseases of the Rectum, General Diseases of the Skin, and Local Diseases of the Skin.

Affections of the nervous system have had considerable space devoted to them. There are special articles on Tetanus, Delirium Tremens, Hysteria, and Locomotor Ataxy; affections of the brain and cord, and of their coverings, receive full justice in the articles on "Head," "Back," and "Spine;" and progressive muscular atrophy, pseudo-hypertrophic paralysis, and infantile paralysis are treated of under Affections of Muscles.

The article on "Nerves" is divided into three parts. Part I, on Nerve Lesions and their more Immediate Effects (on nutrition, sensation, &c.), is by the late Dr. Lockhart Clarke, re-edited by Dr. Brown-Sequard; part II, on Remote Consequences of Nerve Lesions, and part III, on Suture and Stretching of Nerves, are by Brown-Sequard himself.

Dr. Brown-Sequard's list of remote consequences of nerve lesions is rather a startling one, but is verified by abundant quotation of cases and experiments, and by full references to journals, &c. The following is a brief synopsis of the article:—The consequences may be due to *loss of action* in the nerve—*i. e.*, paralytic, and, according to the kind of the nerve injured, may be motor, sensory or incito-motor, vaso-motor or trophic. On the other hand, the lesion may be *irritative*, and as such, may be grouped under two heads—the *peripheric* or *direct*, and the *remote, indirect, or reflex*. The *direct* effects may be—1st. Contraction of muscles. 2nd. Referred or subjective sensations. 3rd. Diminution in the quantity of blood (local). 4. Local hyperæmia. 5th. Various trophic or secretional changes dependent upon the foregoing. These, except the second, may also occur through *reflex* action.

"All the functional disorders, and most of the organic diseases, are frequently produced by an influence exerted upon the nervous centres by an irritation of any part of the length of a nerve" (ultimate ramifications or trunk). . . . "In most instances inflammation of the various viscera owes its origin to a reflex influence on the organ which becomes inflamed, proceeding from the irritation of some cutaneous nerve fibres by a draught of cold air." (A very good illustration of the intellectual risk to which a specialist is exposed.)

"Of the various reflex and other remote effects of irritation of centripetal nerves, the following are the principal. . . . —"*Epilepsy, tetanus, hysteria, catalepsy, chorea, and other convulsive affections; trembling palsy, paralysis of various*

kinds; *anæsthesia, deafness, amaurosis, loss of smell and taste, collapse, insanity, delirium, aphasia, coma, apoplexy, neuralgia, &c.; inflammation, atrophy, hypertrophy, and other morbid alterations of nutrition and secretion*" (*eruption, ulceration, œdema, gangrene, diabetes, &c.*)"

The essential character of these affections for diagnostic purposes is the pre-existence of the nerve lesion, but they mostly present the following common features:—(1.) They are preceded by a neuralgia or neuritis due to a local cause. (2.) Their intensity varies with the action of the local cause. (3.) So long as the local cause remains, general treatment is of no avail. (4.) They disappear at once, or soon after the removal of the local cause. Further, local narcotics often diminish the remote affection. As regards treatment, there is nothing new to state.

Concerning suture and stretching of nerves, Dr. Brown-Sequard has not much that is new to say. The subjects are treated fully, and up to date, but comparatively briefly. The following points he considers clearly proved both experimentally and clinically:—"1. Stretching of a nerve acts on the nervous centres, and through them on more or less distant nerves. . . . 2. There cannot be a considerable degree of nerve stretching without a structural alteration of the nerve, rendering the operation equivalent to neurotomy. . . . 3. Regeneration is more rapid in altered nerves after stretching than in divided nerves." P. 221. In conclusion, he quotes the following table given by Messrs. Artand and Gibson (*Reveu de Chir.*, 10th March, 1882) showing the results of all the cases of nerve stretching they knew of up to that time.

DISEASE.	No. OF CASES.	RESULTS.			
		Quite Successful.	Partly Successful.	Failure.	Not Reported.
1. Neuralgia,	70	48	10	6	6
2. Contracture,	4	2	1	1	...
3. Facial tic,	5	4	1	...	...
4. Traumatic spasm and } local convulsions, . }	1	1	...	...	...
5. Peripheric paralysis,	5	1	4	...	...
6. Organic disease of } nervous centres, . }	16*	5	3	8	...
7. Tetanus,	28	7	...	19	2

* Including 8 of locomotor ataxy.

Volume III includes articles on Surgical Diseases of the Absorbent and Vascular Systems, with a very full article on Aneurism by Mr. Holmes; Affections of the Urinary, and Male and Female Sexual Organs, including the Mamma; Venereal Diseases; Diseases of the Thyroid Gland; Operative Surgery, including Anæsthetics, Minor Surgery, Plastic Surgery, Amputations, Excisions, and Resections. An appendix contains articles on Surgical Diseases of Childhood, including Rickets; Osteotomy; Apnœa; Parasites; Venomous Insects and Reptiles; Surgical Diagnosis, and Regional Surgery. A very full, carefully compiled Index completes the work.

One of the most interesting contributions in this volume is Professor Lister's article on Anæsthetics. It is in three sections, written in different years, 1861, 1870, and 1882, each successive section being a commentary and extension of the previous one. This arrangement enhances the interest of the article, and it will be very reassuring to most Scotch surgeons, on comparing these sections, to find Mr. Lister, in whose judiciousness and candour they will have full confidence, still adhering in the main to principles clearly laid down twenty-one years ago. After having lived through many fierce discussions, and after, we presume, having had full opportunity of observing the results of methods different from the Scotch, we find him still using chloroform in preference to other anæsthetics; still administering it on the towel as the simplest, and because the simplest, the safest method; still insisting on observation of the breathing rather than of the pulse for signs of danger; and still refusing to be terrified by the bogus of heart disease; and, we may add, still firmly holding to his previously expressed opinion that "the appointment of a special chloroformist to a hospital is disadvantageous."

The advantages over ether claimed for chloroform from the first have been that it is more potent, less irritating, more agreeable to the patient, less volatile, and so more easily given, and not dangerous in the presence of a flame. Ether has been found by some to be less likely to cause vomiting, and so has been preferred by Keith for ovariectomy. Its special advantage over chloroform, in having a less depressing effect upon the heart is undoubted, especially when it is given by the "open method" (folded towel), but it is precisely when it is so given that it causes most irritation of the bronchial mucous membrane. Mr. Lister seems to admit that ether may be less liable to cause death *through mismanagement* than chloroform is, but is very decidedly of opinion that this mismanagement need not be legislated for. The depressing effect of chloro-

form was very clearly shown by various experiments made by the Glasgow Committee of the British Medical Association (*vide* Reports published in *Brit. Med. Jour.*, 21st June, 1879, and 18th December, 1880). Mr. Lister is not inclined to accept their results because he thinks that the chloroform was given in much too concentrated a form, and so made to appear more dangerous than it is when carefully administered. In certain series of the experiments, certainly, the air was "made to bubble through the anæsthetic agent in a Wolfe's bottle on its way to a tube tied into the trachea," but on referring to the reports mentioned we find that in one at least of the experiments, on a dog, which show the depressing effects of chloroform most markedly, the chloroform was given on a folded towel, and not by the objectionable apparatus. Even in those experiments on frogs, where the anæsthetic vapour was, as he thinks, given in too concentrated a form, his objection loses much of its force when it is remembered that the various anæsthetics were all given under exactly similar conditions, and that under these conditions the difference in the amount of depression produced was most marked. Mr. Lister certainly admits that chloroform does act as a depressant, but holds that when it is properly administered that action is not such a grave matter as many wish to prove. He firmly declines to be frightened into discarding it for any other agent, and states his position thus:—"The danger of chloroform may be compared, not inaptly, to that of railway travelling. In both cases the risk incurred by any individual is so small that it does not enter seriously into our calculation. And just as railway accidents are generally occasioned by culpable mismanagement, so death from chloroform is *almost invariably* due to faulty administration" (p. 610). He thinks the "close" method of giving ether produces a combination of anæsthesia and asphyxia, and renders it much more dangerous than chloroform.

The A.C.E. and other mixtures he thinks no safer than chloroform; bichloride of methylene, no safer; ethidene dichloride and the combination of chloroform and subcutaneous injection of morphia much less safe. Of "ethidene" he says that "in the trials which it has received on the human subject fatal results have been proportionally more frequent than with chloroform" (p. 924), but does not give figures.

He adheres as firmly as ever to his opinion that the presence of heart disease is no objection to the use of chloroform. "Chloroform, by preventing shock and mental effort during the operation, as well as anxiety before it, is in reality a source of safety in heart disease; and if a person with

known cardiac affection decides to place himself in the hands of a surgeon, so far from being unsuited for the anæsthetic, he is before all others the man who stands most in need of its protecting influence." (P. 601.) "I have systematically abstained from making any preliminary examination of the heart, thus avoiding needless alarm, which we know to have been the cause of some fatal events both with chloroform and with ether" (p. 614). Undue timidity in the administrator is undoubtedly as dangerous, or more dangerous, to the patient than terror in the patient. Terror in the patient appeared to contribute very materially to the fatal result in Mr. Lister's first case of death from chloroform, which occurred in his private practice lately, and of which he gives details at p. 615.

Mr. Lister still adheres to the "open method" of giving chloroform, but has modified the method somewhat in deference to the results of experiments by M. Paul Bert. Writing in 1861 and 1870 he advocated the use of the folded towel, as giving the anæsthetic vapour in practically the degree of concentration demonstrated to be safest by Dr. Snow's experiments, and as having given results superior to Dr. Snow's inhaler (pp. 601, 602, and 607). In a paper published in *Comptes Rendus*, 14th November, 1881, M. Paul Bert "concludes that there is a certain percentage below which chloroform fails to produce any anæsthetic effect, however long it continues in operation; that there is another percentage, at or above which it proves mortal; and that between these two definite proportions there is a 'workable zone' which produces anæsthesia, but does not kill; and when the quantity of chloroform is such as to be about the middle of this zone, the animal is rapidly anæsthetised, and yet may be safely left for an indefinite time in the same atmosphere." "The smallest mortal proportion was just double the smallest anæsthetic quantity" (p. 613). Mr. Lister has tested and accepted these conclusions, and recognises the advantage of having a method by which the strength of the vapour can be regulated more exactly than by the old method. Junker's inhaler, he thinks, meets the necessities of the case, but he objects to apparatus, as being not always at hand, and liable to get out of order. Skinner's bag, he thinks, gives too concentrated a vapour, and when made to fit close to the face, does not admit enough air. He now uses "the corner of a towel, pursed up systematically into a concave mask to cover the mouth and nose by pinching it together at such a distance from the cover that, when the pinched up part is

held over the root of the nose, the corner extends freely to the point of the chin. . . . Chloroform is gradually dropped upon it till the greater part of it is soaked, the edges being left dry to avoid irritation of the skin by the liquid; and the moist condition is maintained by frequent dropping, until the requisite physiological effects are produced. . . . When full anæsthesia has been produced, it is steadily maintained by dropping with about half the frequency" (p. 619). According to experiments by Mr. Lister, this method gives about 5 % by weight of chloroform in the inspired air, or a little over 1 % by volume,* and the quantity of chloroform *used* in several cases was a little over 2 drs. in each case. "This method is a little more troublesome than our old plan of holding a folded towel over the face and replenishing it with chloroform at considerable intervals; but the constant attention which it necessitates is an additional element of safety. During the last five months I have proceeded on these principles, and I have been much pleased with the results. The gradual manner in which the chloroform is applied in the first instance makes the administration extremely comfortable to the patient; respiratory obstruction has been markedly less frequent than formerly, even the falling back of a relaxed tongue being of rare occurrence; there has been, as a rule, remarkable immunity from vomiting or after-sickness, and, except in one instance, no serious depression." In this one instance the trouble was due to direct contravention of instructions given concerning the preparation of the patient beforehand.

Did space permit we would gladly deal more fully with this article, but we must refer those interested in the subject to the original, which will repay careful perusal and re-perusal. One other point we are tempted to notice, and that is, Mr. Lister's disapproval of the appointment of special chloroformists. In 1861, after giving full instructions as to the method of administration of chloroform and the watching of the patient while under its influence, he said, "These simple instructions may be acted on without difficulty by any intelligent medical man. The notion that extensive experience is required for the administration of chloroform is quite erroneous, and does great harm by weakening the confidence of the profession in this valuable agent, and limiting the diffusion of its benefits." In 1870 he wrote, "The appointment of a special chloroform giver

* Results conforming very closely to the range of safety laid down by Dr. Snow's experiments, by M. Bert, and to those of the Chloroform Committee of the Medico-Chirurgical Society.

to an hospital, is not only entirely unnecessary, but has the great disadvantage of investing the administration of chloroform with an air of needless mystery, and withholding from the students the opportunity of being trained in an important duty, which any one of them may be at once called upon to discharge on commencing practice, and which, though certainly simple, is better performed after some practical initiation" (p. 608). Again, in 1882 (p. 614) he signifies his disapproval of such appointments.

We have singled out, arbitrarily, one article from each volume of the *System* for more detailed analysis and comment, in order to give some idea of the tenor and scope of the work as a whole. All the articles, however, are full and good, and a work in surgery more generally useful to a reader could scarcely be found. One who possesses it has a very complete and handy library of surgery in a compact form.

REPORTS OF HOSPITAL AND PRIVATE PRACTICE.

GLASGOW ROYAL INFIRMARY.

FROM DR. PERRY'S WARDS.

(Under the care of DR. J. W. ANDERSON.)

A CASE OF MALIGNANT DISEASE OF THE LUNG INVOLVING THE SUPERIOR VENA CAVA.—[Reported by Mr. C. W. Stewart, M.A., M.B.] Mrs. H., æt. 56, was admitted to Ward IV of the Royal Infirmary on 2nd July, 1883, complaining of great breathlessness, and of swelling of the upper part of her body. Since December last she had been troubled with a slight cough and spit, but these both ceased previous to her admission here. In other respects she uniformly enjoyed good health, but although married for 21 years she never had any family. There is no history either of specific disease or of rheumatism. As to family history: her mother died of phthisis and her father of bronchitis; she has still two brothers and one sister alive and well.

Upon examination it was found that the face, chest, and arms were swollen and pitted on pressure; the arms, however,

felt much firmer than is usual in œdema due to cardiac or renal disease. The superficial veins of the neck and chest were engorged, the skin of the latter having, on account of this, a mottled or patchy look. It is to be noted that these symptoms were equally marked on both sides.

Upon percussing the chest, a dull area was found on the right side, extending vertically from an inch below the clavicle nearly to the level of the nipple, and laterally from the left edge of the sternum for about three inches towards the right side. No pulsation was detected in this situation. Elsewhere over the lungs there was clear resonance, except at both bases behind, which were found to be quite dull. Here the breath sounds, and the vocal fremitus were both wanting, and generally, the respiratory murmur seemed fainter on the right side than on the left. As to the heart, its area of dulness was of normal extent, and the sounds, although somewhat weak, were unaccompanied by any murmur.

The liver was neither enlarged nor painful on pressure. There was no expectoration, nor did patient's temperature ever rise higher than 99°. She always sat, propped up in bed, any attempt to lie down being followed by increased breathlessness and lividity of the lips.

As there were no evidences of true lung or heart disease to account for this orthopnoea and œdema, a diagnosis was made of a malignant mediastinal tumour, affecting mainly the right lung, but hindering the venous return from both sides of the body equally. This conclusion was arrived at from a consideration of the patient's age, the duration of the disease, and the locality of the physical signs. Some pleural effusion was also suspected.

Little hope was entertained of much improvement in her condition; indeed, she seemed to grow weaker every day, and died on 10th July, eight days after admission.

With the relatives' permission, a *post-mortem* examination was made 36 hours after death. The following notes of it are mainly from the Journal:—Upon opening the thorax a quantity of serous fluid was found in the pleural cavities, in the right 32 and in the left 30 ounces.

The right lung was somewhat collapsed; both lungs had fallen away from the chest wall, there being no adhesions except a small one towards the lower part of the left lung.

Occupying the second and third interspaces of the right side a whitish tumour was seen, nodular on the surface, and resembling a mulberry calculus in appearance. It was soft, and on section a milky fluid exuded, which, under the microscope, was

seen to consist of round cells. The tumour involved the root, and also extended some distance into the substance of the right lung. At one point it had penetrated into the cavity of the pericardium. It had also grown through the wall of the superior vena cava, and in this way hindered the return of venous blood from both sides of the face, and from both arms equally; in addition to this there was thrombosis of the right innominate vein near its junction with the left.

The pericardium contained a small quantity of blood-stained fluid. No malignant growth was found in any of the abdominal viscera. Dr. Coats having seen the preparation, stated that the tumour was probably a sarcoma originating in the bronchial glands at the root of the lung.

WESTERN INFIRMARY.

REPORTS UNDER THE SUPERVISION OF J. LINDSAY STEVEN, M.B.

FROM PROFESSOR GAIRDNER'S WARDS.

CASE OF PERITONITIS (TUBERCULAR?) WITH GREAT ASCITES: AND ALSO ACUTE PERICARDITIS. [Reported by Dr. R. Stewart, House Physician, and by Dr. Steven.]—J. C., grocer, residing at Gateside, Beith, was admitted to Ward I on 8th May, 1883, with swelling of the abdomen, presenting the physical characters of ascites.

His statements indicated him to have been a temperate man, not to the extent of unusually severe abstinence, but certainly to the extent of not greatly exceeding at any time in the use of ardent spirits.

As far as can be ascertained, there was no distinct morbid affection of the digestive function up to the period at which patient noticed the swelling begin; but, on the other hand, loss of appetite was progressive as the swelling increased, so much so that patient regarded the swelling as the direct cause of the loss of appetite.

Previous to this illness, he did not remember ever to have had any serious trouble with one exception, viz., an attack, twelve years before admission, of dropsy which, immediately succeeding exposure on a snowy morning, affected the body generally, and appears to have been in all probability of renal origin.

On admission there was, in addition to the ascites, considerable dropsical swelling of the lower limbs, lower part of the trunk, and left hand and arm. But the mode of origin of the swelling in the present instance was apparently quite different from that twelve years' ago, inasmuch as in the present attack the abdomen swelled first and had attained very considerable bulk before the legs were implicated at all. Considerable œdema of the lower limbs, however, came on at a later period, and some degree of general anasarca, as affecting the face and back, may have succeeded, although not very apparent in the face on admission.

With the exception of a transient, slight pain in the right breast, the swelling was throughout its whole course absolutely painless.

Patient suffered considerably from difficulty of breathing, but apparently this was entirely due to and consequent on the swelling.

The bowels were throughout slightly costive, and any vomiting he had was attributable to jalap administered by medical advice.

The urine was very much reduced in quantity before admission.

There was marked irregularity in the rhythm of the heart, not amounting to intermission, with a rate over 100, probably reaching 110 or 112 at times; but, on careful examination, both by auscultation and percussion, nothing indicating organic change could be discovered.

Respirations numbered 34 in the minute, and were evidently accompanied by increased strain on the accessory muscles giving rise to movement of the whole thorax. A fine mucous râle was detected at the bases of both lungs with a somewhat deficient respiratory murmur and impaired percussion.

The urine, on admission, had an acid reaction, a specific gravity of 1020, and a considerable deposit of lithates, but was devoid of albumen. Circumference of the abdomen about two inches above the umbilicus was 42 inches; the distension was apparently equable and globular, and palpation did not reveal any solid or other irregularity.

Percussion in the recumbent posture yielded the following results. From nearly the xiphoid cartilage to the umbilicus there was highly tympanitic percussion, which extended to the left side of the epigastrium, and to some extent over the usual area of gastric percussion in the left hypochondrium, though, in the latter region, too, limited and rather obscure. At the right hypochondrium also, over the normal position of

the arch of the colon, a certain degree of tympanitic percussion existed, but no adequate demarcation could be made out between colon and stomach, or between either of these and the small intestine. Over the cæcum also, and to some extent over the ascending colon, percussion is obscurely tympanitic; but from the umbilicus to the pubis, and all over the left side of the abdomen, except within three to four inches from the umbilicus, the percussion was dull, and the dulness could not be penetrated by a stronger percussion. By far the most superficially tympanitic portion was that between the umbilicus and left hypochondrium.

Paracentesis abdominis was performed by Southey's trochar, on the morning of the 11th, and on that and the succeeding two days, 346 ounces of fluid were removed. The tube was removed on the 14th, and at that date no abnormality could be detected in the liver or spleen. The abdomen was everywhere soft to palpation, and the percussion tympanitic, even in the right flank, less so in the left. On the 21st an obvious tendency to re-accumulation was noted, but the increase in the peritoneal dropsy was not in proportion to that of the limbs, which were now much swollen—so much so, that instead of further attempts at paracentesis, it was decided to puncture the limbs with Southey's capillary tubes. Slight irritation being set up in the right leg from the use of the tubes, the left only could be used after two days. Straub's funnel drainage was used in addition to Southey's tubes, and in four days 289 ounces of fluid were removed.

The quantity of urine reached a minimum of about 6 ounces at the time of the paracentesis (11th May), rose gradually within the next five days to 38 ounces, and afterwards oscillated between 16 and 56 ounces. It had an acid reaction, specific gravity 1020, with a considerable sediment of lithates, and devoid of albumen.

Temperatures throughout remained almost entirely normal or subnormal, the mean being 98.3°, with a maximum of 100.2°, and a minimum of 97°, and in connection with this absence of fever, it is worthy of remark that there was a persistently accelerated pulse and respiration, these being usually about 120 and 30 respectively. This was due apparently to the infiltration of the lungs at the back, and enfeebled action of the heart.

During the latter period of this patient's illness the urine diminished somewhat, and contained a trace of albumen, but the peritoneal dropsy remained pretty much in abeyance,

although there was no appreciable diminution in the œdema of the lower limbs.

Death occurred suddenly, about four weeks after admission, preceded by lividity of the upper part of the body, the head and arms.

Internal treatment consisted in the administration of diuretics, cream of tartar and Trousseau's diuretic wine, four ounces of brandy daily, and occasional doses of compound jalap powder.

A *post-mortem* examination was made on the 6th June, 1883, by Dr. Joseph Coats, of which the following is a report:—

External Appearances.—There is great œdema of the lower limbs, and also, to a less degree, of the upper extremities and chest. The abdomen is considerably enlarged.

Chest.—The left lung is very slightly adherent.

The pericardium contains a considerable amount of turbid fluid, and both surfaces are coated with a characteristic fibrinous exudation, which shows in many places the typical honey-combed appearance. The heart is much enlarged, especially the right ventricle, and the tricuspid orifice is dilated. In the right auricular appendage four typical globular thrombi are found, one of them as large as a marble, and it as well as the others contains fluid. In the right pulmonary artery there is a large globular thrombus nearly occluding the vessel.

The lungs present on section a coal-black colour, and an inky-looking juice exudes from their cut surfaces. The lung tissue is for the most part crepitant, but there are in every part small solid nodules, and occasionally a considerable area of complete consolidation.

Abdomen.—The peritoneum is nearly everywhere beset with pale white nodules. These nodules present no appearance of caseous metamorphosis.

The spleen is much enlarged, weighing 10 ounces; its tissue is firm, but there is no appearance of amyloid disease.

The kidneys are also firm in texture, and on section present extreme hyperæmia.

The liver weighs 59½ ounces, presents characteristic nutmeg markings, and on the surface is somewhat granular.

The intestines present some thickening of the mucous membrane, but are otherwise normal.

A microscopic investigation of the nodules on the peritoneum was undertaken by Dr. Steven, and it was found that they were composed of little globular masses of round cells, closely resembling the general microscopic appearances of miliary

tubercles, without, however, giant cells or caseation being present in those examined. The nodules were thus evidently inflammatory in nature, and although the naked appearances seemed, both to Drs. Gairdner and Coats, to be suggestive of the possibility of malignant disease, no cancerous structure whatever could be made out.

The relation which the condition of the peritoneum bore to the ascites, and the doubt as to whether the inflammatory products were truly tubercular, are interesting points in this case.

FROM PROFESSOR GEORGE BUCHANAN'S WARDS.

CASE OF AMPUTATION AT THE HIP JOINT—RECOVERY.—Mrs. F., æt 33, a dressmaker, was admitted to ward VIII on the 3rd March 1883, suffering from several large, foul, discharging sinuses on the outer aspect of the right thigh; and gave the following account of her case. When she was eight years of age she fell upon the right knee, and "knocked the cap off." As the result of this accident, the joint became very painful and extensively swollen, discharging a large quantity of pus on being incised by a medical man. Altogether at this time she was confined to the house for twelve months, and she has been compelled ever since to employ a crutch in moving about. Since this first attack at eight years of age the thigh has broken out, and healed up frequently at different places between the hip and knee joints, and fragments of necrosed bone have on several occasions been discharged through the sinuses. It broke out last about six months ago, and has not since healed.

On admission the right thigh, especially on its outer aspect, was seen to be perfectly riddled with ragged discharging sinuses, in several of which the worm-eaten-like extremities of necrosed bone were seen.

17th March, 1883.—This morning, in the operating theatre, after the patient had been put under the influence of chloroform, Dr. Buchanan amputated through the hip joint.

On account of the very numerous sinuses on the thigh, none of the ordinary methods could be employed, and so a modification of the oval was performed. The femur, as well as the soft tissues of the thigh, was found to be very extensively diseased.

The patient recovered well from the shock of the operation, and was soon making satisfactory progress towards recovery. Upon the 13th April all the stitches were removed, and the

note in the journal states that the stump is doing well, and that the patient's general health and appetite are very good. Slow improvement, both as regards the stump and the general health, is recorded till the 22nd June, when the patient was dismissed from Hospital for change of air.

M E D I C A L I T E M S .

UNDER THE DIRECTION OF

ALEX. NAPIER, M.D.

Micrococci in Pneumonic Sputum.—The micro-organisms discovered in pneumonic lung by Klebs, and further described by Eberth and Friedländer, and figured by Koch, have been detected in pneumonic sputum, in two cases, by Dr. Franz Ziehl, of Heidelberg. Friedländer's description of these bodies is full and trustworthy. They are stated to be generally uniform in size and shape, being as a rule ellipsoidal in form; their length is 1μ , their breadth about a third less. They were usually seen in pairs, and sometimes formed chains, in which the arrangement of the "diplococci" was recognised. Leyden confirmed these results, obtained from examination of the dead body, by an experiment made during life: he pushed the needle of a Pravaz syringe directly into the consolidated lung, withdrew some of the exudation, and in it were found large numbers of the micrococci. Now Ziehl has found the same bodies in the rusty sputum; he states that they are easily demonstrated, and that they are sometimes present in such enormous numbers as to fill up the entire microscope field. Still, it is to be noted that they are so very abundant, and associated with but very few other organisms, only in the sputum in the earlier stages of the pneumonia; later on, especially after the crisis, many other micro-organisms are present as well.

The two cases mentioned were typical examples of genuine fibrinous pneumonia. The sputum was simply dried in a thin layer on a cover-glass and stained with "gentiana."

The author does not regard this discovery as of much importance diagnostically, as in most cases the simple appearance of the rusty sputum is characteristic enough of pneumonia. It has an important bearing on the theory of causation, how-

ever; wherever these bodies are found it may be inferred that the case in hand is one of infective pneumonia. It may aid also in the solution of the question whether the fibrinous pneumonia developed after contusion of the chest is or is not due simply to the injury. The author, for instance, does not think it conclusively proved that in the cases recently recorded as cases of pneumonia from contusion the disease was the direct result of the injury; inclined apparently to regard pneumonia as very often a specific infective disease, he suggests it as possible that the contusion simply acts as a predisposing influence, providing a suitable nidus or soil for the micrococci.—*Cbl. f. d. Med. Wiss.* 23rd June, 1883.

Gautier's Poisonous Salivary Alkaloid.—In his article on a certain alkaloid in the human saliva (*Arch. f. Path. Anat. u. Physiol. u. f. Klin. Med.*, xci, 1, 1883), Bujevid makes a communication on the salivary alkaloid described by Gautier (*Gazette Hebdomadaire*, No. 29, 1881), which does not resemble an albuminoid.

According to Gautier, this alkaloid should possess the following properties:—It is not soluble [in what?], it is not destructible by boiling, and gives crystals when treated with gold and platinum chlorides. As to its physiological action, it behaves like those alkaloids which are found in the cadaver; when brought into the system, it acts like serpent's venom, this action being most marked when it is given to birds. Gautier makes no further mention of the nature of the alkaloid, of the method of obtaining it, or of the quantity requisite to produce the effects.

Bujevid's communication is in respect to the latter questions, the first of which was to determine the quantity of the substance which, when introduced into the system, would produce death, or at least an appreciable effect. He experimented in the following way:—He boiled the saliva of a healthy man of twenty-five years, and then collected 100 c.c., evaporated it as much as possible, and treated the residue with alcohol. After washing with alcohol and water very often, he evaporated it to about 2 c.c., and used this as a subcutaneous injection. In the first experiment he injected as much as is contained in 15-30 c.c. of saliva into a pigeon, and also into a frog. They both showed one hour, and indeed, several hours after the injection, no change in their condition. In the second experiment he used, in the case of a pigeon, as much as was contained in 50 c.c., and afterward, also in the pigeon, as much as was obtained from 100 c.c. of

saliva. In all three of these experiments there was no apparent effect. In the last pigeon the rectal temperature was 42.4° C. before the experiment; one hour after it was 41° , and the next day 41.3° .

His experiments show, therefore, that in the fresh saliva, in as large a volume as 100 c.c., there is not enough of the supposed alkaloid of Gautier to produce either death or an appreciable effect, even on a small animal.—*New York Medical Journal*. May, 1883.—J. A. A.

Hygienic Treatment of Albuminuria.—Prof. Senator, of Berlin, has an interesting article on this important subject in the *Berliner Klin. Wochenschrift*, 4th December, 1882. His recommendations may be summed up as follows:—

With regard to *diet*, two points need consideration: first, the influence of the digestive process itself; secondly, the influence of the kind of diet on the albuminuria. It is well known that, in the healthy, albumen may appear for a short time in the urine after a very full meal; and also that, in those who are already subject to albuminuria, the loss of albumen increases during digestion. Hence the rule that in albuminuria the meals should not be large, but should be small, and given at short intervals. The selection of the kind of diet to be allowed is of even greater importance. It has been proved experimentally that the elimination of albumen is greatly increased after certain articles of diet. Of these, perhaps ordinary egg-albumen is the most objectionable; eggs, therefore, should be forbidden. Most meats also fall into the same category, especially mature meats. Cheese, also, is to be avoided. If flesh meats must be permitted, those which contain least albumen will be best, such as veal, young fowl, &c. Fish, also, being less rich in albumen than flesh meat, should appear oftener on the table. Of vegetables extensive use may be made; but the same rule should be followed—namely, limiting the quantity of those which are rich in albumen, especially the leguminous vegetables. But green vegetables, salads, fruits, may be taken freely. With reference to fats, their use will depend solely on the condition of the digestive organs; if they can be digested they will prove useful.

Of beverages, those of an alcoholic nature are, as a rule, to be avoided, especially such strong liquors as brandy, &c. Wines are less harmful; indeed, Senator permits *red wines*. Beer seems to do more injury than wines. Powerful spices

and such condiments are hurtful; and generally all excess in eating or drinking.

The "milk cure," when it can be borne, gives good results; it is rendered more bearable by the addition of a little white bread, bread soup, or oatmeal.

Of the mineral waters, the best are those of a saline or alkaline-saline nature, and they may be warm or cold according to the peculiarities of the case. Baths, also, are so far valuable that they influence tissue-metamorphosis, and thus, perhaps, the elimination of albumen; further, they often prove valuable by exciting the functions of the skin.

Impressions of cold must be most carefully avoided. Thus, woollen underclothing should be worn.

Another point of some importance is this—that the patient should as far as possible abstain from muscular exertion; it has been repeatedly observed that albuminuria is aggravated by such exertion. Too active exercise, therefore, is not permissible; mountain climbing, pedestrian tours, &c., are out of the question; indeed, in old standing chronic cases, the fresh air will be best enjoyed by driving.

Mental influences should also be studied in such cases; excitements of all kinds should as much as possible be withdrawn. Patients often benefit in this way by long abstention from business.

In females albuminuria usually increases at each menstrual period; at such times, accordingly, the foregoing rules should be most carefully observed. Often the patient should be kept carefully in bed while the discharge lasts.

Change of climate is one of the most powerful therapeutic agencies in cases of albuminuria, as it usually permits of the carrying out of all the hygienic measures already indicated. The southern and drier health resorts are most to be recommended: as those in the Riviera di Ponente, especially Bordighera, Cannes, &c.; but above all, Egypt and Cairo.—*Obl. f. d. Gesammte Therapie.* February, 1883.

Successful Extirpation of the Gall Bladder.—Langenbuch records in *Berliner Klin. Wochenschr.*, 1882, No. 48, a case where he extirpated the gall bladder for chronic cholelithiasis. The patient had suffered very severely for a long time, all treatment having failed to give relief; and as Langenbuch had convinced himself, by numerous operations upon the dead body, that the operation of cholecystectomy was a possible one, he resolved to perform it.

The liver was exposed by a double T shaped incision along

the border of the rectus abdominis muscle. By raising the right lobe of the liver, the hepatico-duodenal ligament was put on the stretch, and the cystic duct easily found and separated. After tying the duct with silk, about three quarters of an inch from the gall bladder, the latter was emptied by aspiration and dragged forwards and freed by division of the peritoneum around it, partly with the knife, partly with seissors. Though only two small cholestearin stones, each the size of a millet seed, were found in the gall bladder, the patient remained quite well three months after the operation, and had gained considerably in weight.—(*Centralbl. f. Chir.* 1883. No. 9.)—D. M'P.

Resorcine in the Treatment of Anthrax.—Dr. Justus Andeer records, in the *Arztliches Intelligenzblatt*, January, 1883, a case of anthrax treated successfully by the external application of resorcine in the form of a paste. The part mainly affected was the arm, which was reddish brown in colour, firmly infiltrated and very painful to the touch: on it were nine large separate pustules. The contents of the pustules, sanguinolent or purulent, were crowded with well marked specimens of the anthrax bacillus. Inoculative experiments with this matter, made on two rabbits, produced fatal anthrax. The constitutional symptoms were very pronounced. Bearing in mind what Davaine has proved with regard to this disease, that, in the early stages, it is curable by treatment directed to the destruction of the pustules, and recalling certain of his own experiences with resorcine, Andeer at once applied to the pustulo-erysipelatous parts of the arm a thick layer of ointment made of equal parts of resorcine and vaseline, and covered all in with a gauze bandage. The patient was kept on good diet (eggs, bouillon, red wine). Next day the general symptoms had undergone a marked change for the better. Locally, the pustules, papules, and vesicles had become white and soft, and the parts were no longer painful to the touch, all the swellings could be thoroughly emptied of their purulent contents, and the softened cores extracted. The erysipelatous redness of the skin between the pustules had given place to a natural colour. The pustular eruption had spread, however, beyond the parts treated to others which were formerly healthy. These were treated for two more days with frictions of a vaseline and resorcine paste (30 of the former to 70 of the latter), when the attack could be said to be definitely ended. In a few days more large sheets of skin, hardened by the resorcine, peeled off, leaving sound

and supple skin underneath, with no cicatrices.—*Bull. Gén. de Thérap.* 15th April, 1883.

Resorcine as a Topical Application in Simple Chancre.

—M. Leblond has used this substance for several months as a topical application in simple chancre, mucous patches urethritis, and vaginitis. With regard to soft chancres, resorcine has on them a very rapid and energetic healing action; it is more effective even than iodoform. From the author's statistics, it seems that the average duration of treatment with iodoform was thirty-eight days, with resorcine twenty-three days. It has the advantage of being quite inodorous and of producing no toxic symptoms even when used in large quantity.

Applied to a fresh wound, resorcine causes slight pain, which soon disappears. It gives to the ulcerated surface a whitish or opaline coloration, the result probably of coagulation of the albumen and of the serum of the blood.

The resorcine may be used in powder, or in solution (5 parts to 20 of distilled water). The dressing has to be renewed every two or three days.—(*Annal. de Gynécologie.*) *Journal de Thérap.* 25th April, 1883.

Paget's Disease of the Nipple.—Dr. Louis A. Duhring reports in the July number of the *American Journal of the Medical Sciences* two cases of Paget's disease of the nipple, which he holds is not an eczema, but a peculiar disease with a malignant tendency. It must be distinguished from eczema, which it resembles, and from ordinary cancer, which it is altogether unlike in its earlier stages. It seems to occupy a ground having the characters of both diseases. The report is interesting as showing the natural history of the affection. This is peculiar. The course of the process is emphatically chronic. In both instances, moreover, the progress of the disease was insidious as well as slow. Nothing of a malignant nature was suspected until after the lapse of five and ten years respectively. The itching, which eventually became such a marked symptom, was in both cases insignificant until the affection had existed several years. It may be said not to have manifested itself until after the process had been well established. In this respect the disease differs decidedly from eczema, where itching is one of the first signs noted. The circumscribed, sharply defined outline of the lesion, and the slightly elevated border, are also symptoms which do not obtain in eczema. The brilliant colour of the lesion is striking,

and is more marked than in eczema. The absence of the "eczematous surface," characterised by appreciable discharge or by vesicles, pustules, or puneta, coming and going from time to time; and the absence of exacerbations, so usual in eczema, may also be referred to. A point to which attention may also be directed is the infiltration, which is firm or even hard, but is not deep-seated. It is rather superficial. In eczema, on the other hand, it is soft.

The pains coming on later in the course of the disease, and the indurated, lumpy, or knotted lesions within the gland structure, of course point strongly to the malignant or cancerous nature of the disease, the existence of which cannot be doubted.

Experimental Keratitis: its Bearing upon Stricker's Theory of Inflammation.—Dr. J. L. Minor, of New York, in a brief paper in the July issue of the *American Journal of the Medical Sciences* claims the establishment of the immigration theory; because the pus cells are similar in appearance to the white blood-corpuscles; they can be traced from the corneal periphery to the point of irritation; and having also gained access to the corneal tissue through the eschar, they are most abundant immediately around this centre, where we can still recognise dead, but intact, corneal corpuscles. The corneal corpuscles, show signs of proliferation, some time after the cell immigration has set in; and this proliferation gives rise, not to pus cells, but to new corneal corpuscles, and they are strictly limited to the zone surrounding the dead corneal corpuscles; whereas leucocytes, or pus cells, in abundance, can be found in various parts of the cornea, at a distance from this point.

An Anomaly of the Human Heart.—Dr. Horace Grant, of Louisville, reports in the July number of the *American Journal of the Medical Sciences* a remarkable anomaly of the human heart, interesting not alone from its striking singularity, but as well from its clinical importance.

In a *post-mortem* examination of a mulatto girl, aged 16 years, the right ventricle was found to communicate directly with the aorta, no pulmonary artery was to be seen attached to the heart. The left auricle was normal, the left ventricle presented only one-half the usual attachment of the aorta. In a word, both ventricles opened with equal freedom into the aorta. At the pericardial attachment to the aorta, two arteries were given off, each about one-fourth of an inch in

diameter, they passed right and left backward from the front of the aorta and evidently supplied the blood to the lungs. This curious anomaly is discussed in connection with the clinical symptoms observed during life.

Corrosive Sublimate in Midwifery Practice.—In M. Tarnier's practice corrosive sublimate, in solution, has for some time been used as an antiseptic, with great success. Every one (nurse, students, &c.) who has to approach the patient has to wash the hands in the solution; this has not yet produced any indication of salivation in the attendants. When the patient is taken into the hospital she has a bath, if it is found convenient; the whole of the genital region is then carefully bathed with a 1:2000 solution of the sublimate; finally, the vaginal canal is thoroughly injected with the same solution (tepid), and a compress soaked in the same placed over the parts. During labour the injection is renewed about every three hours. After delivery is completed, another injection of the same kind is given, and the parts are carefully sponged with the solution. If labour has in all respects been normal and everything seems to be going on well, the parts are afterwards simply sponged externally with a 1:80 carbolic acid solution and covered with a compress soaked in the same.

If the labour has been completed by artificial aid, if there remain in the uterus portions of the membranes, if there is sloughing, or especially if the lochia turn foetid, the 1:2000 solution of sublimate is again used; four, five, or six times a day, a vaginal injection with the solution is practised, the parts are sponged with it, and the napkins soaked in it.

350 women have been treated in this way, and of this large number only one died. Her death was caused by peritonitis, and at the autopsy the remains of a former attack of the same disease were traceable.

Under the influence of the sublimate, the lochial discharge loses all trace of foetor in one or two days, and the fever diminishes rapidly. Involution of the uterus seems unusually rapid; in many cases, when the patient was dismissed on the tenth or fifteenth day, the cervix uteri was unusually firm, and had almost completely regained its normal shape and consistence. No case of salivation or of anything approaching to mouth symptoms, was met with among these patients.

In three cases of puerperal fever intra-uterine injections of the sublimate solution were used with perfect success.—(*Annales de Gynécologie*). *Journal de Thérap.* 25th Feby.. 1883.

THE
GLASGOW MEDICAL JOURNAL.

No. III. SEPTEMBER, 1883.

ORIGINAL ARTICLES.

ON THE INFLUENCE OF LANGUAGE UPON MEDICAL
THOUGHT AND PRACTICE.

By W. J. MARSHALL, M.D., L.R.C.S.E., Greenock.

*(Being his address as President of the Glasgow and West of Scotland Branch
of the British Medical Association, on 29th June, 1883.)*

GENTLEMEN,—I have in the first place to thank you very sincerely for having conferred upon me the honour of electing me your President for this year. When I think of the distinguished men who have preceded me in this office, I may well feel a certain amount of pardonable pride in the fact that you have thought me worthy to succeed them. My consciousness of my own deficiencies, however, steps in to keep me modest; and I feel that it must be to your generous appreciation of my efforts, and to your hearty support of me in them, that I must look to be able in any degree to satisfy the legitimate expectations of the Association.

I have felt considerable difficulty in choosing a subject on which to address you. I have no hospital appointment, and cannot continue those delightful clinical *séances* which have been so much appreciated by all the members. Neither is there any special subject of diagnosis or treatment on which the profession at large is at present exercised which might tempt me to make any remarks. As to the rather "burning question" of the Medical Amendment Bill, I have so few decided opinions that it would be unwise of me to dwell upon

it. I shall only take leave to say that I think the present *teaching* bodies of Scotland have hitherto done such good work that they need not dread any untoward results from any legislation leading to a greater freedom in instruction, and that it is my decided opinion that some of the medical classes in our great centres of instruction might be greatly improved by being diminished in numbers. I also very strongly deprecate any legislation in the way of prosecuting and punishing irregular practitioners, being profoundly convinced that any such legislation will prove worse than useless by giving such men the air of martyrs and an ill-deserved notoriety. When we recollect how many "quacks" are to be found in the ranks of so-called regular practitioners, it is a question how far registration and licensing are a protection to the public.

Leaving aside these debateable points, I have thought that a few minutes might be profitably spent in meditating on the logical question of the influence of language on medical thought and practice.

Man, with his five senses and his power of voluntary motion, may be looked upon as an analysing machine. The complex and concrete wholes, which are presented to our observation in nature, are immediately analysed, according as they affect the eye, the nose, the ear, the taste, the touch, and the power of motion, and different qualities are thereby at once recognized. As experience increases different wholes are compared and classified, according as they agree or disagree in the impressions which they make upon the different "gateways of knowledge."

Language is of the greatest assistance in these processes, for it must not be forgotten that words or symbols are, to a great extent necessary, as well for the *formation* as for the *communication* of thought. To the child language is taught long before it can have thought up to all the distinctions implied in the words which are spoken to it. The child's knowledge is confused and vague; but, by the help of language and constant observation to rectify mistakes, he learns to discriminate and distinguish what differs, as well as to classify and arrange together what agrees.

Several functions of language are important in a logical point of view. In the first place, it facilitates the analysis of the complex impressions received by the senses. When I use the words, "the skin is red and warm," I express what I experience in one concrete whole of time and space; but, as different effects are experienced by sight and touch—redness and heat—and as the skin is thought of in other conditions

than those of redness and heat, and again these qualities are thought of as applied to other organs than the skin, language enables us more easily to decompose the parts of one compound experience and to combine them again. By going over, in thought, any series of phenomena observed in daily practice, say in a case of pneumonia, or scarlet fever, or diabetes, this office of language, in assisting us to analyse and decompose the complex features presented to our various senses, becomes very manifest. We are thus enabled to separate the phenomena exhibited by the skin, the respiration, the bowels, the urine, the nervous system, &c., and re-combine them in one whole.

Language, in the second place, enables us to fix and register the different notions which we form from the observation of external objects. The peculiarity of general notions is, that as intelligible relations between many objects, they cannot be depicted to sense or imagination, and they must, therefore, be stereotyped, as it were, in a sign or symbol, called a common term. Heat, for example, apart from warm objects, can be conceived as applicable to many objects, but it cannot be seen or felt or imagined in the mind. And so also with "red" or "redness." The terms "*heat*" and "*red*" or "*redness*" fix and register these notions, and so enable us to hold in thought these qualities apart from any individual experience in a certain moment of time, or a definite portion of space. We can think of "*redness*" without thinking of any particular red object, or if we do picture in imagination some individual red object it is used solely as a sign representative of all or any red objects, and we can reason about this quality without reference to any particular object or its other qualities, and this we can do with ease only by means of language. Words in this way crystallise, as it were, the results of experience. In many cases they are the "monuments of buried and forgotten theories," while in others "they are the keys to unlock caskets containing living truths."

"Language," says Michaelis, "is a kind of archives where the discoveries of men are safe from any accidents; archives which are proof against fire, and which cannot be destroyed but with the total ruin of the people." This it is which renders the study of etymology so interesting and instructive. It is to be admitted that this is not a perfectly "pure stream, and that truths and errors float in it confusedly mixed." Still, in this view, language is a "kind of library containing a great number of useful discoveries, often including in one word as much good philosophy as any system whatever."

When we speak of "jovial," "saturnine," "mercurial," or

"martial" temperaments, it is interesting to know, though we do not always recollect, that these terms imply an exploded theory of the influence of the stars upon the human system. Many other words in medicine bear the marks of opinions held by the best physicians. "Melancholy," coming from two words signifying black bile, refers to the old theory of the influence of one of the four principal humours in ancient pathology. "Hypochondriasis" comes from words meaning under the cartilages, and carries us back to the theory of such disorders being owing to disease of the viscera below the chest. "Hysteria" comes from a word meaning the last organ, as this seems to have been the order in which the womb was placed in treatises of anatomy, and lays the blame of the multitudinous and varied symptoms included under that name upon the unfortunate and long suffering organ which was described last by anatomists. "Amaurosis" was called "gutta serena," to contrast it with cataract, and is interesting as being the name used by Milton when he makes such a touching allusion to his own blindness in his address to Light. The "duodenum" was so named from being usually about 12 inches long. The "tendo Achillis" seems to have been a name chosen by some anatomist who wished to show his acquaintance with ancient mythology. Other words contain, and represent in a fairly truthful way, the results of connected and regulated observation. The words "inertia," "affinity," "gravitation," and "exudation" are examples. When such terms are constructed they serve to convey with ease, and to preserve faithfully, the opinions which they assume. "They enable speculators to make use of these complex conceptions, the creations of science, and the results of much labour and thought, as readily and familiarly as if they were convictions borrowed at once from the senses." It is thus that, by the aid of language, we can recall and express with wonderful facility the different qualities of objects. They are like the labels on a druggist's bottles, which enable him to lay his hand upon what he wants at once. Without names for natural objects, we should be sadly at a loss to distinguish among similar things. It has been observed that they who are deaf from their birth are deplorably stupid, whereas that they who are born blind often show a capacity and penetration much above the common, and that difference must proceed from the more perfect system of signs—viz., that of speech—possessed by the blind. This is corroborated likewise by the admirable results of teaching lip language to deaf-mutes.

There is another use of language to which attention has

not been sufficiently directed, and one which is of the greatest importance in all complicated subjects like medicine. It is this, that words, which are merely signs of thoughts, become in long trains of reasoning like algebraical symbols, and are used as thoughts for the time being. We do not, that is to say, fully analyse, or spread out to our view, all that is contained in each of the complex terms which are made use of. This is one of the main reasons why so much nonsense is spoken and written without being challenged, and why it is so necessary to have recourse to definitions and explications of complex terms, and in any train of argument about which we are in perplexity, to substitute these definitions for the terms in question, and then to see how that substitution affects the arguments made use of, or the descriptions given. Such words as "inflammation," "constitution," "infection," "contagion," involving so many phenomena and qualities, which are not always present to the mind when the terms are used, have done much mischief, and are responsible for many disputes in medical literature.

The last and most obvious use of language is, of course, that of serving as a means of communicating our thoughts about things to other minds. As to present external objects, merely pointing to them, would suffice; but as to absent objects, internal feelings, and general notions, a set of symbols like language is absolutely necessary to enable us to indicate them to others.

We have thus seen that by giving names to things, including objects, their qualities, and their relations, we seek to distinguish them, and to arrange them in classes according as they do or do not agree in certain marks observed. We likewise use these terms as a medium of communication with others to suggest to their thoughts the same objects as we ourselves are occupied with. Now, unless these words suggest the same notions, and through them the same objects to both speaker and hearer, there can be no correct reasoning or discourse upon them. It was considered one of the praiseworthy features of Socrates, that he went about seeking for definitions of words. He took certain general terms which were current in daily conversation, and which men used freely, such as "virtue," "courage," "holiness," &c., and brought them to the test of actual experience. He asked all and sundry whom he met to define them. He brought before their minds such and such acts, such and such features of character, and asked are these instances of "courage," &c., and he would not let his victim go until he either confessed

his ignorance, or until, in the process of disputation, they arrived together at some satisfactory explanation of the term in question. We should all be the better of a medical Socrates to put us through a cross-examination occasionally as to some of the terms we use. Many a controversy would never have taken place, and very many disputes would have been very easily settled, if the disputants had begun with a definition of their terms. In no department of practical knowledge has the want of such full explanation of general names been of more consequence than in medicine. Ambiguous phrases have led to verbal disputations, and false theories crystallised in "big words" have influenced injuriously medical thought and practice, so that many have prescribed for the name without studying the nature of the disease, and what is fully as important, the nature of the patient who is diseased.

It is of course to be admitted that there are peculiar difficulties in the study of medicine owing to the complicated and fluctuating nature of the phenomena subjected to our observation. We know so little of the true nature, and of the precise locality of many diseases, that our notions of them are neither *clear*, in the way of distinguishing them from other diseases, nor *distinct*, in the way of analysing the complex phenomena, of which each group is made up, so that the names by which we fix and register these notions in our own minds, and of which we make use in communication with others, suggest neither to ourselves nor others the same ideas at all times. Hence arise confusion of thought, misunderstanding, and misinterpretation, with the possible baneful consequences of mistaken diagnosis and injurious treatment. In all such cases the only remedy is to verify our concepts; in other words, to have recourse anew to the observation of nature, and revive our acquaintance with the facts presented to our senses, from which our notions of such and such a disease, its relations, and its treatment were drawn. It is in this way that the present development of physical diagnosis, by means of the stethoscope, the sphygmograph, the thermometer, the laryngoscope, &c., has been of such service in classifying our ideas, and giving consequently precision to our language.

I shall now, as briefly as possible, advert to one or two instances in the history of medicine where names have had an influence on medical thought and practice, either by including perfectly different groups of phenomena under one name, or by suggesting some theory as to the cause or

nature of the disease, in such a way as to lead to mistaken diagnosis, and its almost inevitable result, injurious treatment.

Sir Gilbert Blane, in his *Medical Logic*, has a chapter on the ambiguity of language as one of the obstacles to progress, and he gives the following illustrations. He refers in the first instance to the fact that "scorbutus" or "scurvy" was a name applied both to the fearful scourge produced by the want of fresh vegetables, and also to simple skin eruptions. This retarded the use of lime juice, and also led to the use of mercury, with such dire results, that of 400 men in the Imperial armies of Hungary, treated by Kramer with mercury, every one died. "Let no one, therefore, allege," says he, "that the incorrect application of a single word is of small importance."

Another instance is that of "yellow fever" being a name applied to three different types of disease, according to Blane. Two of these were comparatively simple and non-contagious. This he maintains led to the opinion that the third form was also non-contagious, and was the cause of much mischief and many disastrous consequences from the want of proper precautions in the way of separation of the sick from the healthy.

Blane also calls attention to the facts which were then beginning to be observed with regard to "dropsy," that it was a term which covered a great many forms of disease arising from different causes, and necessitating different modes of treatment.

The subject of "inflammation," its nature and treatment, has been one which has given rise to a good deal of controversy, and pertinently illustrates my theme. The derivation of the name from words indicating "a burning" has had a considerable influence on medical thought and practice. In the first place, the sensation of heat, both by the patient and the physician, with the analogous effects produced by outward burning, very naturally suggested the term; and this, on the other hand, has given rise to the notions of a fire, and of its extinction by violent interferences with nature in the shape of bleeding, blistering, and purging.

In the celebrated controversy between Dr. Alison and Dr. Bennett and others, as to the cause of the great difference between the treatment of inflammation in ancient and modern times, it seems to me there were obvious deficiencies in the arguments on both sides. Dr. Alison, who stoutly maintained that the main cause of the difference of treatment was the

observation of a change in the type of disease, neglected to advert sufficiently to the great fact that there are fashions in treatment without reference to changes in the character of disease, and that bleeding had been in and out of fashion too often for wise men to believe that the change was always the result of, or coincident with, a change in the type of disease. Dr. Bennett, on the other hand, who sneered most contemptuously and unwisely at the doctrine of the change of type of disease, and maintained that the difference in treatment was wholly owing to advance in pathology and therapeutics, altogether overlooked the facts of changes of type in disease, not only in long periods, but daily in every period. Even in the old writers, who recommended so strongly bleeding in acute cases at an early stage with a full pulse, we find allusions made to cases of a different character, or to cases at a different stage, which necessitated caution in the use of this heroic remedy, or even an abandoning of it altogether. Every careful observer finds in daily practice the need of discriminating between cases of inflammation. Each case of pneumonia, for example, has to be studied in itself, and in one case sedatives, in another stimulants will be indicated, and even in the same case, at different stages, different indications will arise; so wise is the advice of Dr. Alison to study in diseases the tendency to death, and to regulate our treatment accordingly.

Another case, in which a name is of grave consequence as to thought and practice, is that of the disputed point of there being or not being two distinct diseases under the name of "croup." Is there, or is there not, an acute sthenic inflammation of the trachea, and an asthenic infectious diphtheria of the trachea? My own opinion is that there are two distinct types of disease affecting the trachea, with a certain similarity of symptoms, but necessitating totally different treatment. Be the case as it may, however, the question of a name is obviously of immense importance in the matter of diagnosis, and treatment by remedies and seclusion of the patient, and justifies my reference to it as illustrating the influence of words upon thought and practice in medicine. It also points very obviously to the lesson of studying nature accurately in each case of disease brought before us, so as to be guided in practice more by the nature of the phenomena and of the patient than by the name by which we recognise or record the disease.

Another case in which the importance of a name is obvious is that of "puerperal fever." The discussion, which took

place a few years ago, brought out the fact that there was a great difference of opinion as to the nature and pathology of this disease. The name itself has had much influence on medical thought as to the origin and nature of the disease. A careful analysis of the different phenomena in different attacks of the disease led Dr. Leishman to the conclusion "that the term puerperal fever might be discarded, to the ultimate advantage of all concerned. The expression 'post-partum fevers' has been suggested, and is in some ways to be preferred; but, in the present and still unsettled state of the subject, it would, we believe, be dangerous to abolish old familiar landmarks, and on that account we are content to retain it, employing it, as it were, under protest, and in a guarded or limited sense"—viz., "that the symptom which we call 'puerperal fever' may arise from a number of different poisons or causes, and that the apparently specific character of the disease is due, not to anything specific in the cause, but to the peculiar physiological condition under which a puerperal woman lies."

In this connection it becomes important to attend to the terms "contagion" and "infection." Dr. Watson, in his justly esteemed classical *Lectures on the Practice of Physic*, says, "You will hear persons disputing about the term 'contagion;' but such disputes can only arise from the want of a distinct definition of the sense in which it is employed. I understand a disorder to be *contagious* when it is in any way *communicable* from one person to another. Some would restrict the word contagion to the cases in which there must be absolute contact of the healthy body with the sick body, or with its visible offscourings. When the disease can be conveyed through the medium of the atmosphere, or by means of other intermediate substances called fomites, they would call it *infectious*. And there is no objection to such a distinction, provided it is understood by the reader or hearer, as well as by the writer or speaker. But since in all cases the disease is conveyed to the person of the recipient by particles of matter proceeding from the person of the sick, and since it seems very unimportant whether those particles are in a solid or in a gaseous form, whether they are imparted by direct contact of the two human bodies, or by being wafted through the air, or carried upon articles of clothing, I shall include both and all these modes of communication under the single term 'contagion.' This is, in fact, what is done in common discourse; all disorders that are 'catching' I shall take leave to consider 'contagious.'"

Gentlemen, these are a few illustrations of the influence of language upon thought in medicine. The subject is vast as well as important, and I feel that I have not been able to do it anything like justice in the necessarily short paper which I have just read. I shall close with a few practical applications.

It is obvious that for the advancement of medicine the observation of nature must go hand in hand with reasoning from the facts perceived. He that observes, but makes no effort to classify and arrange what he observes, or to draw conclusions from his facts, is just as unwise as he who is satisfied with notions and names, without a constant verification of them by a renewed observation of the facts from which such notions and terms were derived. Both are equally unprofitable servants in what should be the great aim of all, to clarify our ideas, and to give precision to our terms in describing the phenomena of disease, their relations, and the effects of remedies upon them.

Our language should be as precise and accurate as we can make it, so that there may be no ambiguity in our terms. This is only to be attained by having our notions clear and distinct as the result of repeated and careful attention to the phenomena presented to our observation.

Again, to prevent the possible tyranny of terms we should cultivate a knowledge of synonyms and of etymology. It is in this way that a knowledge of several languages is so useful as an intellectual exercise, by giving precision to our conceptions and accuracy to our language.

While our language should be as scientifically accurate as possible, we should not neglect the graces of a pleasing style. Accuracy and precision are of course essential; but the use of synonyms and figures, in accordance with the rules of good taste, keep up the attention, which is apt to flag in a scientific discourse, if it is treated in a dry, jejune, and uniform style. On the other hand, a style which is elegant as well as exact, re-acts upon the minds of both writer and reader, imparting to them new activity, and giving rise to new ideas, which might never otherwise have been suggested.

A CASE OF EARLY RECURRENCE OF MEASLES.

By ALEXANDER STEWART, M.D.,

One of the Medical Officers to the Pendleton Provident Dispensary.

E. B., a previously healthy boy, seven months old, was first observed to be unwell on the 3rd of May of this year. I saw him on the evening of the 5th, when his mother said she was afraid he had scarlet fever; but I had no difficulty and no misgiving in diagnosing measles. There were the usual febrile and catarrhal symptoms, the eruption—of a rosy colour, and tending to coalesce into blotches on the face and some parts of the trunk—being as distinctive as in most cases, and its appearance on the third day of illness might very easily have been only apparent, as the mother had many other children to attend to, and might readily overlook the very beginning of indisposition. The case went on satisfactorily without any noticeable deviation from the ordinary normal course, and the child soon regained its usual liveliness, and was even more obstreperous than formerly, so that the mother was more than once led to make the remark—"The measles has quite set our Ernest up."

On the 5th of June, thirty-three days after the commencement of the first attack, this child sickened again with what the mother thought was an ordinary cold, and on his becoming worse, I was sent for, and saw him on the morning of the 7th of June. The patient's condition then was decidedly feverish; he was listless, and inclined to sleep; the eyelids were partially adherent from the muco-purulent discharge exuding from between them; there was also some difficulty of breathing, and on physical examination of the chest, extensive bronchitis of both lungs was discovered; this was more marked at the bases. Next day, being the fourth of this illness, on visiting the little patient, I was astonished to find him covered with an unmistakable measly eruption. The spots were more equally distributed all over the body, more discrete, and less inclined to congregate together and to coalesce into patches, and perhaps also, as far as I could recollect, of a more decidedly pinkish hue, than on the previous occasion. There could be no doubt about this being measles, and the question forcibly presented itself—Was the diagnosis of the former complaint inaccurate? Could it be that I had mistaken Rôtheln for measles? The case seemed clear enough at the

time of its occurrence, and until it became obscured by later events; and during that time, as well as before and after, I had numerous opportunities of observing the disease (measles), and can only believe now, as I did at the time, that this child's first illness was a genuine case of uncomplicated measles. That it was not a case of Rötheln may be concluded from the very considerable manifestations of general disturbance present besides the eruption (which was characteristic enough to leave no doubt in my mind as to its true nature), and also from the fact that the eruption did not appear till the evening of the third day. Whereas, in Rötheln the eruption is the first, or almost the first symptom to attract attention (Thomas; Ziemssen's *Cyclopaedia*, vol. II, p. 143). Admitting, then, that the two illnesses were caused by measles, that the second attack was simply a recrudescence of the first can scarcely be maintained in the face of the perfect recovery of the child, and his remaining demonstratively lively and well for some three weeks thereafter. In an interesting case recorded by Dr. Finlayson (see *Glasgow Medical Journal* for September, 1882), where three eruptions occurred during a single attack of measles, only nine days intervened between the appearance of the first and second, and six days between the second and third eruptions—the second and third eruptions were regarded as relapses similar to what may occur in enteric fever. My patient's recovery was slow, but ultimately complete.

It may be stated, in connection with this case, that twelve persons live in a house of four rooms; that in the interval between the two attacks three other children in the same house, all of whom I attended, had had measles, but none of them previously; and that at this time, as well as before and after, there was a very prevalent epidemic of the disease in the neighbourhood, which is thickly populated. Is it not just possible, not to say probable, that these circumstances may have exercised some influence in intensifying the poison of the exanthem, till it became stronger than the child's power of resistance, even though he had suffered from it so shortly before?

SURGICAL NOTES.

By J. CRAWFORD RENTON, M.D. Ed.,

Surgeon to the Dispensary of the Western Infirmary, Surgeon to the Eye Infirmary, Glasgow.

(Read before the Medico-Chirurgical Society.)

SINCE 1876, in all cases where an anæsthetic was administered, I have used the Dublin Inhaler, and find it equally applicable whether chloroform, ethidene, or ether be employed. The inhaler consists of two pieces of thick wire, 13 inches in length, nickel plated, bent into an oval form, and united by a series of wires, 3 inches in length, which must be firmly soldered to resist the action of the fluid used, and be separated an inch from each other. Through this framework a bandage is passed backwards and forwards, and a firm piece of india-rubber surrounds the frame, passing beyond it for two inches at one side. The chloroform is poured on the bandage, and while the patient inhales a greater amount of chloroform than when using the ordinary towel or flannel inhaler, still there is a sufficient amount of air to ensure safety. The advantages of this Inhaler are:—1. The small amount of chloroform which is required to produce anæsthesia and to keep it up. 2. The rapidity with which patients become anæsthetized with it. From 2 to 3 minutes has been the average, and never more than 5 or 7. The same patient will take 3 minutes with the inhaler, and often 20 with the ordinary towel. This I have noted several times, and patients have told me that they could not be put under chloroform on former occasions, but the inhaler produced complete insensibility in three or four minutes. 3. Economy both in chloroform and time, and with, I am inclined to think, increased safety to the patient, who inhales much less of the poison and avoids the cumulative effect. Instead of operations occupying an hour with the delay in bringing the patient under the influence of the anæsthetic and a further detention in coming out of it, complete anæsthesia is rapidly produced and as rapidly passes off.

I was glad to observe, in a recent number of the *British Medical Journal*, a paper strongly advocating the use of an inhaler, and from my own observation of the one referred to above I can confidently recommend it.

I. Fibroid Tumour removed by Abdominal Section—Pedicel treated with Silk—Hæmorrhage in twelve hours—Re-opening

of abdomen—*Application of Kæberle's Serre-nœud—Recovery.*
—Mrs. A., æt. 35, married, no family, was sent to me in October 1882, by Dr. Allan. She complained of a swelling in her abdomen, which she stated had existed for 10 years. Recently it had grown somewhat and had given her pain and inconvenience, so that she was anxious to have it removed if possible. On 10th November she was admitted to the Training Home for Nurses.

On examination, *per Hypogastrium*, a round doughy tumour was found, movable, with obscure fluctuation. Measurement round umbilicus 32 inches. *Per Vaginam*.—Uterus high up in the pelvis, but movable, and seemed to move along with the tumour. Probe passes easily. *Per Rectum*.—The tumour is felt passing into Douglas' space. Menstruation regular. Had not had attacks of menorrhagia.

Dr. Allan and Dr. Beatson examined the patient along with me, and we were of opinion that we had probably to deal with a uterine outgrowth closely attached to the uterus.

The woman was otherwise in good health and with no history of serious peritonitic pains, and as the mass gave rise to great discomfort we recommended her to have it removed.

18th November.—To-day, assisted by Drs. Allan, Beatson, and Nairn, the following operation was performed:—An abdominal incision, 4 inches in length, was made, and the surface of the tumour exposed, no adhesions being found; a trocar was passed into it, and as only a little blood escaped it was evident that we had to deal with a solid growth; the abdominal opening was enlarged two inches upwards and downwards, and it was easily discovered that the tumour was growing from the uterus and was attached by a distinct pedicle, which was 6 inches in circumference and $2\frac{1}{2}$ in thickness. The tumour was now turned out and a Foulis' band, fitted with hooks instead of the ordinary catch, was applied to the pedicle; this controlled the large vessels in it, and on Dr. Beatson's suggestion I passed a skewer through above the band and cut off the tumour along with the ovaries, which were attached to the tumour. I now secured the pedicle with four strong Keith's silk ligatures below the band, and, having done so, I removed it (the band), and cut off with the cautery $1\frac{1}{2}$ inches of the pedicle. Pedicle dropped into the cavity and the wound closed, no blood having escaped into the peritoneal cavity. Antiseptic dressings applied and the patient placed in bed. The operation lasted 1 hour and 20 minutes from begin-

ning of chloroform to the time the patient was in bed, the length of time being accounted for by the fact that cutting through the pedicle with the cautery was very tedious.

Evening.—Patient weak, pulse 132, but looks well.

19th.—Sunday, 10:30 A.M. Patient collapsed; pulse hardly perceptible; pain in abdomen; some distension. Hæmorrhage had evidently occurred, and, with the approval of Drs. Allan and Beatson, ether was administered both by inhalation and subcutaneously, and I opened the wound; I found that the pedicle was bleeding freely, shrinking having taken place and the ligatures ceasing to act. The pedicle was accordingly drawn up and Kœberle's *serre-nœud*, which I had obtained through the kindness of Dr. H. C. Cameron, was applied firmly round it and left fixed in the end of the wound. This clamp is most convenient and can be gradually tightened as shrinking takes place. The clots were cleared out and the wound again closed.

Stimulants were freely given and ether injected subcutaneously, but the pulse remained at 160, with a normal temperature. The patient took the stimulants and food given, but was cold and collapsed looking. The ether injections had a rousing effect, and always caused flushing of the face and a more perceptible pulse.

20th.—11 A.M. Pulse continues as rapid and at times barely perceptible, and it was quite evident that unless some improvement took place soon, our patient must die. I accordingly determined to perform transfusion unless there was improvement by 2 P.M., and at Dr. Allan's suggestion we gave her warm milk in half-tea-cupfuls every half hour, which she retained and enjoyed. This had a most reviving effect, for, by 2 P.M., when I arrived with a friend to supply the necessary blood, we found the pulse improved in strength and coming down in frequency. This seemed to be the turning point, for, with certainly several alarming collapses, she gradually improved. We found that the improvement went on most satisfactorily when she had very small doses of stimulant, but with free allowance of milk, barley water, and chicken soup. I am satisfied that we were greatly indebted to her power to absorb the warm milk, which supplied the want of fluid in her system.

The wound healed at once and the clamp separated on the 28th day, the aperture closing in a few days afterwards, and the patient was dismissed well on the 6th January, 1883.

Remarks.—The result of the operation fully justifies the procedure adopted; at the same time, I feel that but for the

splendid nursing she received in the Training Home she could not have survived the double operation. Every order was attended to, and I cannot speak too highly of the care and unremitting watchfulness shown in this case; and I can confidently recommend the Home to any of you who want to have the best nursing and attention for your patients.

It may be argued that there was no urgent bleeding to call for the tumour being removed; but the discomfort and mental annoyance it caused, along with acknowledged safety of such operations, is sufficient reason for agreeing to perform it. Whether removal of the ovaries would have been sufficient I cannot say; but in future cases I am inclined to try it, all the more so if the patient is weakened by loss of blood.

As regards the tumour it weighed 5 lbs., and was a distinct uterine outgrowth, and on section presented a very distinct fibroid appearance. Dr. Newman examined it and found that it presented all the characteristics of a uterine myoma.

II. *Osteo-myelitis of Femur—Disease of Knee-joint—Pyæmic Symptoms—Amputation of Thigh—Recovery.*—Mrs. W., æt. 35, was admitted to the Training Home for Nurses on 23rd December, 1882.

History.—Had suffered from disease of the knee-joint for nine months. In spite of rest, blistering, &c., the pain continued, and, with the approval of Dr. M'Farlane, of Busby, she came under my care in the Western Infirmary in August. I applied the actual cautery with relief to the pain, and in the beginning of October she went home. The pain however returned, and early in December she was seized with chills, pains in several joints, more particularly the other knee, and wrists. Dr. M'Farlane ordered salicin for this with marked benefit, and on the 23rd she was brought to town owing to the pain continuing in the joint. On examination, the femur is found greatly thickened for five inches up the shaft, and the whole limb is swollen; patient complains of great pain which prevents sleep. Pulse, 120; temp., 101·5°. Thirty drops of Battley's solution ordered, and a weight applied to the foot; slept well. Pain in wrists improving.

25th.—Pain worse, with slight shivering. Salicin continued, and on the 26th amputation of the thigh in the middle third performed, assisted by Drs. Beatson and Allan. The day after the amputation the right wrist was swollen and painful, but the salicin relieved it quickly, and after the fourth day pain entirely disappeared from all the joints. The patient made a good recovery, the whole stump healing

with great rapidity, and on 10th February she was dismissed well.

Remarks.—The knee-joint was much diseased and the femur was thickened for four inches upwards. There was a threatening of pyæmia, with subsidence of all the serious symptoms shortly after the operation. On account of the femoral disease, it was necessary to amputate in the middle third of the thigh, otherwise I fear we would not have had such a satisfactory result. The effect of the salicin in controlling the pain was of value.

III. *Cancer of Rectum—Scraping with Semon's Spoon—Relief for Thirteen Months.*—Mr. S., 40, was sent to me by Professor M'Kendrick. He had been suffering for the last six months from pain in the lower bowel, accompanied by bleeding, which was at times considerable. The appearance of the man indicated that he had lost a large quantity of blood.

He has always been healthy and is a temperate man. On examination, the rectum was found filled with irregular hard masses, which passed for four inches up the bowel, commencing immediately above anus; behind the urethra they are very extensive and closely attached to it, so that, anteriorly, it would be difficult to separate them, they bleed freely, and are evidently villous in character. Owing to urethral attachment, I decided to operate by scraping the surface of the new growth, and not excising the rectum. The patient was admitted to the Training Home on 10th January, and on the following day, assisted by Drs. Beatson and George Anderson, I scraped away a large number of these masses. The urethra was closely involved with them, so that it would have been hazardous to its safety to have removed the rectum. The amount of bleeding was less than I expected, and was easily controlled by finely powdered matico. A decoction of zinc was freely applied to the raw surfaces previous to the introduction of the matico on lint.

After forty-eight hours the lint was removed and the rectum washed out with weak Condyl's fluid and water; and the following day the patient had a movement of the bowels without any pain or bleeding, the first time for four months that it had been absent. He progressed favourably, and was discharged in a fortnight from the time of operation, and was directed to take Chian turpentine internally. Since then I have seen him on three occasions, and he has continued free from pain and hæmorrhage, and as a consequence looks much better. The bowel, when examined early in January of

this year, showed that whatever growth had taken place had been slight. The patient declared that he felt great benefit from the Chian turpentine.

The great success attending the late Professor Semon's operations on the womb in cancer led me to adopt a similar treatment in the above case; and, although we cannot expect any permanent benefit from it, if we can arrest hæmorrhage and relieve pain for a few months by means of it we are entitled to do so.

The masses removed were carefully examined and showed appearances characteristic of scirrhus. As regards the Chian turpentine I have not been able to satisfy myself that it was of any genuine benefit either in this or in any of the other cases I have tried it. It certainly seems useful in the irritating cough which accompanies secondary cancer in the lungs, and in ordinary catarrhal conditions it sometimes acts like a charm. As to its curing cancer we have not yet obtained a cure for that dire disease, and not until we can inoculate a cancer poison will we obtain an efficient agent to deal with it.

IV. Ruptured Perineum and Recto-Vaginal Septum—Double Operation—Recovery.—Mrs. F. consulted me with reference to constant irritation of the lower bowel, and a feeling as if it and her womb were coming down. On examination, I found that the perineum was torn, and that the recto-vaginal septum was also lacerated for three inches. She had control over her fæces, but to no great extent; and walking to her was misery. She had had four children, and with the second she knew that the perineum had yielded.

I advised her to come into the Home in Renfrew Street, and on 26th Oct., 1882, Dr. Allan, Dr. Beatson, and I made a careful examination of the parts, and we determined that it was best to divide the operation into two—1. closure of the septum; 2. closure of perineum.

I proceeded to the first and carefully united the rawed cleft with silver wire sutures, this healed entirely, and on the 10th Nov. I performed the second division, which also succeeded, except at one small point, but so minute was it, and with a beautiful valve over it, that I decided to be satisfied. The patient has greatly improved since, and now can perform her functions satisfactorily.

Remarks.—Although not specially recommended in all the surgical works, I feel that it is important, where the septum is much torn, to divide the operation into two parts, because it heals better. You can remove your stitches more easily than

if you do the entire laceration at one sitting. In addition, it is difficult to obtain good union in such a large wound in this region, mainly because the parts are so contracted and so exposed to irritating fluids that their vitality is necessarily low.

V.—*Inflammation of Throat—Œdema Glottidis—Tracheotomy—Ūremia—Death.*—10th Jan.—A. H., æt. 2½ years, after being out to-day, became suddenly feverish and sick. Pulse at 11 P.M. was 150, and temperature 101°. Tongue furred and throat swollen and inflamed without any glandular swelling. Hot bath ordered, with poultice to throat and a mixture of chlorate of potash and bromide of potassium. Steam kettle to be used.

11th.—Child less feverish. No eruption on skin. Throat less swollen. Poultices discontinued.

13th.—Still improving. Evening—Throat again swollen, child more feverish, nose running freely with tough mucus plugging it at times. Poultices resumed.

14th.—Child passes little water, so that *spirit. ether. nit.* was ordered, with the effect of increasing the amount, but the water was not obtained.

16th.—Child has continued much the same; temperature normal in the morning, 100° at night; pulse 120. Throat much the same; no glands involved. Borax and glycerine ordered to be applied.

17th.—Laryngeal symptoms commenced and recurred in the usual manner at intervals, the hoarseness remaining permanently. Evening—Professor Gairdner saw the child in consultation, and agreed with me as to the throat being inflammatory, the more so as there was no depression and no glandular enlargement; he further coincided with me in thinking that, should the laryngeal symptoms increase, we had a most favourable case for tracheotomy. He recommended the use of Adams' inhaler and iodide of potassium internally.

17th, 3 A.M.—Sent for, and found the child worse, the obstructive symptoms having increased. She had had one alarming suffocative spasm which made the father come for me. He told me that he expected we would find her dead; but on arriving the spasm had passed off, and although still tossing restlessly in bed she breathed more easily than when he left.

I advised that tracheotomy should be performed, and the parents having agreed, aided by the kind assistance of Dr. Parker, who lived near the house, I opened the trachea, which

lay deep as usual; but having once hooked it there was no difficulty in opening and introducing one of Dr. Foulis' tubes. The relief was immediate and so thorough that next day she was playing with the inner tube. The nurse I obtained to attend to the child succeeded in getting some urine, which, on boiling, was found solid with albumen.

18th.—Dropsy of a most acute nature commenced on this evening, and this gradually increased until the 20th, when she sank, evidently poisoned by the renal obstruction. Various remedies were tried—a blanket bath was carefully carried out by Dr. F. Pollock, and after this she made water and seemed relieved, but there was no decided return of renal power. The laryngeal symptoms remained perfectly relieved.

Post-mortem.—I examined the larynx, trachea, and kidneys, and submitted them to Dr. Steven, who kindly reported upon them as follows:—"On microscopic examination of the mucous membrane of the larynx it is found to be covered with a thin layer of necrosis, beneath which numerous inflammatory corpuscles are observed. On staining with methyl-violet a few groups of micrococci are noticed in the necrosis layer. The kidneys are the seat of intense tubular nephritis, with here and there the commencement of glomerulo-nephritis."

Remarks.—I have no doubt that what we had to deal with was an inflammation of the throat, which at first seemed to spread to the larynx, and cause the obstruction to the child's breathing; but after considering the report by Dr. Steven, and bearing in mind that the relapse on the 14th was followed by acute dropsy, I am inclined to think that the œdema of the larynx was due to the acute nephritis. I find no mention of scarlatinal sore throat passing on to laryngitis except when complicated with diphtheria, of which there was nothing here: but in Trousseau's *Clinical Medicine*, he refers to the sudden development of œdema glottidis as an early if not a first symptom of dropsy in scarlet fever. West says it is very rarely that the larynx presents any sign of being involved in the scarlatinal mischief. Tanner does not refer to it at all. Dr. Steven's report of the presence of glomerulo-nephritis points to scarlet fever as the poison at work, which, from the appearance of the throat, I was inclined to suspect at the commencement of the illness.

CLINICAL REMARKS ON THE TREATMENT OF ACUTE BRONCHITIS.

By JOHN S. MAIN, M.D.

By way of explanation, I would preface that my remarks apply chiefly to those forms of bronchitis occurring for the first time in a previously healthy person; and that I am referring to the disease in a general way, as meaning an inflammation of tubes, of either a great or small calibre.

It is imperative to make some such distinction as this, for those forms of the affection occurring as a complication of Bright's disease or cardiac disease, come under quite a different category, and are mainly to be treated by attacking the first cause, of which this is a mere symptom. Excluding these forms, then, the treatment of acute bronchitis divides itself into three well marked stages:—

1st. That in which it is our object to promote the secretion from the congested mucous membrane. Preliminary to this, however, it should be our object, if we have the case under our care sufficiently early, to endeavour to mitigate the attack, and to use means to prevent its extension.

2nd. That in which it is our object to facilitate the egress of the secretion from the bronchial tubes.

3rd. That in which it is our object to promote convalescence.

It is a trite observation that these three stages of the disease are, as a rule, well defined, forming thus a most safe guide for its rational treatment.

As a preliminary, then, to the first stage of treatment, supposing we have the case at the outset, what means have we in our power for mitigating the severity of the attack and preventing its extension inwards? For fulfilling the first of these indications depressing nauseants and blood-letting no doubt stand prominent, if not alone. As blood-letting, however, has been proved prejudicial, inasmuch as it often retards the further progress of these cases, and in children especially favours pulmonary collapse, it may be dismissed at once. Depressing nauseants, therefore, are the only means we have in our possession for producing this effect; and that they do so very advantageously in many cases is a point undisputed. A grand point in their administration, moreover, and one which blood-letting, even if it were found useful in these cases, could not claim, is, that by giving doses of a greater or less power, we can get just the amount of nausea and depression we want,

to be withdrawn whenever we see necessary, leaving in this way no permanent ill effect on the system, and nothing to retard the further progress of the case. The power these drugs exercise in this way over acute inflammatory affections of the chest is just what we would *a priori* expect, inasmuch as they have the power of holding all the vital powers, for the time being, in their grasp, and as this is especially the case with the circulation, we have, as a consequence, less activity going on in the affected parts—a point of the most vital importance. The most powerful depressing nauseant we have is, no doubt, antimony—best suited, however, for adults. For children, ipecacuan wine (and it acts better if slightly acidulated), suits best. The effects of both these drugs, however, want careful watching, and they should be withdrawn at once, as soon as we think they have performed their purpose. If we get the case at the outset, perhaps we could not employ the first twelve or twenty-four hours to better advantage than in cautiously administering them. I think it questionable if actual vomiting is necessary or beneficial in these cases at the outset. If it were so, I must confess that I have been baffled over and over again in my attempts to produce it in young children by any of these *indirect* means.

So much for mitigation, and perhaps also to a slight extent arresting the spread of the inflammatory process. Our chief means, however, for obtaining the latter of these objects consists, no doubt, in having the surroundings of the patient such as are necessary, especially in seeing that the room in which our patient sleeps is kept at an equable and suitable temperature night and day; in seeing that our patient's covering in bed is of a suitable nature and sufficiently warm; again, in seeing that the room in which our patient sleeps is void of draughts, and that its atmosphere is kept moist by impregnating it with steam. In acute and apparently grave cases (especially in the capillary bronchitis of children), each and all of these points are equally important. It must be confessed, however, that in many cases, to obtain these conditions under ordinary circumstances, would be simply impossible; and such being so it is satisfactory to note that in some hospitals and infirmaries special rooms are now being set apart for the treatment of acute inflammatory affections of the chest individually. In private houses, where these conditions cannot be obtained under ordinary circumstances, I have seen the following expedient used with the best results:—It consists in covering in the top of the bed and suspending curtains closely all round, those in the front being arranged so as to open in the middle.

By this simple means the bed can be perfectly isolated, and the atmosphere easily kept moist by some simple contrivance for conducting the steam within the curtains from a kettle kept constantly boiling. I would also mention (by way of parenthesis) that I have seen this arrangement used with the very best results in the treatment of croup and in the after treatment of tracheotomy.

Having seen to these points our next object is to use means to assist nature in promoting secretion from the inflamed surfaces. As a means of obtaining this end, I would give the first place, without hesitation, to the *judicious* use of poultices. I use the word *judicious* advisedly, for in private houses the amount of ignorance that prevails on this point is almost incredible; sufficient is it, however, to make it a clearly open question whether they could not often be advantageously dispensed with. In acute and serious cases of bronchitis this part of the nursing, to be otherwise than harmful, should be in the hands of a person who understands the uses and abuses of poulticing. In other words, the nurse should know that the poultices ought to be renewed frequently, the sensations of the patient being perhaps the best guide on this point; and, in all cases, as soon as they begin to feel cold, or in the least degree uncomfortable. Further, that before the old one is renewed a fresh one should be at hand ready to replace it, so as to avoid a chill to the sensitive surface. If these points be carefully attended to, cleanliness observed, and the poultices made of a proper consistence, and not too heavy, I certainly consider them indispensable in the treatment of these affections. It seems to me, however, that poultices are often used to very little purpose in the treatment of the more serious forms of bronchitis, inasmuch as they are not sufficiently applied. To poultice the back or front, or any *one* part of the chest, seems to me to be very little to the purpose in these cases, and that nothing short of enveloping the *whole* chest, by means of what is called a "jacket" poultice, is useful. By doing so, we act upon the whole cutaneous surface of the chest, which is thus kept at an equal degree of heat and moisture. Such a poultice can be made in the form of two large ones, one to cover the back and the other the front of the chest, and meet at the sides. Above, they can be united by shoulder straps, attached before and behind. If this be done, and a broad bandage drawn over all round the chest, but not too tightly, such a poultice can be easily kept comfortably and closely applied. As to the kind of poultice I must confess that I have a distinct preference for linseed meal, using mustard, if at all, only

as a sprinkling over the face of the poultice for a short time at the outset. What we want in such cases seems to me to be not so much a sharp action on the cutaneous surface as a slow one, continuously kept up. This object I believe to be best attained by linseed meal; moreover, the peculiar influence the dry powder has been known to exert in some persons over the bronchial mucous membrane, in the way of causing a paroxysmal attack, somewhat resembling asthma, may indicate that in some cases at least it has a special action internally when applied to the cutaneous surface. As soon as secretion has been well established, poulticing may be stopped with advantage, and the chest covered over with wadding.

The medicinal treatment during this stage aims at promoting secretion from the bronchial mucous membrane. With this object in view, I have found nothing more useful in the case of both adults and children than the following prescription, given every three or four hours, both night and day:—

R.

Potass. bicarb.,	.	.	.	.	.	ʒiij
Tr. hyoscy.,	.	.	.	.	.	ʒiij—ʒiv
Spt. æth. nitrosi,	.	.	.	.	.	ʒss
Spt. chlorof.,	.	.	.	.	.	ʒij—ʒiij
Aq. ad.,	.	.	.	.	.	ʒxij

M.

et, R

Acidi citrici,	.	.	.	.	.	ʒij—ʒij
Aq. ad.,	.	.	.	.	.	ʒvj

M.

Sig.—Two tablespoonfuls of the former mixture to be taken with one of the latter, during effervescence, every three or four hours.
(For an adult.)

The citrate of potash, obtained fresh in this way, I have found peculiarly useful in these cases.

Secretion being well established, we now arrive at the second stage, in which it is our object to assist in its elimination from the system. With this object in view, I have found it advisable to continue the effervescing mixture, but to substitute carbonate of ammonia (in five grain doses for an adult), for the spirit of nitrous ether. At this stage of the treatment this drug seems to me to have the power of promoting the secretion, as well as aiding in its elimination. Still later, the hyoscyamus may also be omitted and some further expectorant added, such as tincture of squill, wine of ipecacuanha, or senega. As pointing to the fact that part of

the secretion may also be removed by absorption, I have found an occasional small dose of calomel, with Dover's powder, given at bed time, useful. In some cases iodide of potassium may be advantageously added to either of the *latter* mixtures. If the secretion be profuse and the heart's action weak, I have often found this mixture useful, viz.:—

R_x.

Acidi nitrici dil.,	.	.	.	.	.	3ij
Tr. bellad.,	.	.	.	.	.	3ij
Spt. chloroformi,	.	.	.	.	.	5ij
Aq. ad.,	.	.	.	.	.	3xiij

M.

Sig.—Two tablespoonfuls every four hours.
(For an adult.)

In dealing with children, it is well to bear in mind that, if the amount of secretion be excessive and embarrassing the breathing, a timely stimulating emetic, such as carbonate of ammonia, or mustard, often proves invaluable. This now brings us to the stage approaching convalescence, in which such drugs as quinine, vegetable bitters, steel, nux vomica, and the dilute mineral acids, all have their uses; and when convalescence has become established, I am of opinion that if we can get our patient persuaded to take cod liver oil for a month or two, it has the effect of preventing a fresh attack.

As to treatment not medicinal, I need hardly add that good nursing is invaluable, or that the patient's food should consist chiefly of such articles as milk, beef tea, strong soups, eggs beat up with sugar and milk, and such like substances, all of them easily assimilated and yielding much nutriment.

As to stimulants, I must confess that I have found them most useful, and that I believe myself to be conscious of having seen patients' lives saved by their timely administration. Perhaps the condition of the pulse is the best guide for their use in these cases; and good whisky I find to be quite as useful a stimulant as any other. In acute cases, it has often to be given freely, and is best taken if diluted with warm water and sweetened. In dealing with children, sometimes they can be got to take stimulants disguised with liquorice, as a sweetening agent, after dilution, when they would not do so otherwise.

A CASE OF ACUTE FETID EMPYEMA TREATED SUCCESSFULLY.

By WILLIAM RUSSELL, M.B., Edinburgh,
Honorary Physician to the Carlisle Dispensary.

HAVING read, with much interest, the case of acute fetid empyema which had been recorded by Dr. Buchanan and Professor Gairdner in the February number of the *Glasgow Medical Journal*, as it was summarised in the *London Medical Record* for March, I thought the following case worthy of being published.

Helen T., æt. 21, was seen by me on the night of the 1st of September, 1881. She complained of pain in the left side, which dated its onset from the previous day, and was aggravated by inspiration and the movements of the trunk. There was slight cough. The temperature was raised and the pulse quickened. The lower part of the left half of the thorax was kept almost motionless. There was no dulness over the lower part of the left lung, but the respiratory murmur was exceedingly faint, save when the patient hesitatingly drew a longer inspiration, and partially relaxed the rigidity of this part of the thorax. My belief at that time was that the girl had an attack of diaphragmatic pleurisy. During the first week of her illness the temperature, which was taken night and morning, ranged from 101° to 103°. The pain was, during all that week, not only more severe than I had ever seen pleuritic pain, but also more obstinate and unyielding. Hot poultices gave practically no relief, and morphia hypodermically gave only temporary relief. Friction was at no time heard; but there was evidence that fluid was slowly accumulating. I was so much struck by the intensity and intractability of the pain that I mentioned the case to Dr. Lockie, the senior physician to the Infirmary here, when he suggested the probability of the fluid being purulent, as he had on a former occasion noted the presence of pus when intractable pain had been a marked clinical phenomenon. I asked him to see the patient with me, and we decided to go prepared to aspirate.

On 8th September we visited the patient together, and with the aspirator drew off a pint of excessively fetid pus; the fetor filling the whole room. It was not considered necessary to empty the chest, as it was evidently useless to waste time

with less thorough measures than free incision and free drainage.

On the following day, 9th September, Dr. Lockie kindly accompanied me again and administered an anæsthetic, while I made two incisions into the pleural cavity, the lower of which was made in the intercostal space immediately above the diaphragm, this interspace being found by passing a probe within the thorax downwards from the first and higher incision. A large drainage tube was passed between the wounds, and secured in position. On the day after the operation the pleural cavity was thoroughly washed out with carbolic acid solution, 1 in 80; this was done daily, and the wounds were dressed with a thick pad of oakum. The wounds became covered with a dirty looking false membrane, and the patient's general condition denoted a degree of septicæmia, as evidenced by profuse sweatings and some slight rigors. The discharge, however, became daily less fetid. On the 15th, one week after operation, there is the following note:—"Discharge has been for some days quite sweet, and has now lessened so much in quantity that it only stains the night dress, whereas it used to soak not only it, but a draw sheet under her."

On 3rd October it was noted that the discharge had remained sweet, and had become much less. The drainage tube was withdrawn a day or two before from the top wound, as there seemed to be only a sinus between the wounds, as evidenced by the stream of water almost immediately coming out at the top wound when the syringe was used at the lower one. "The general condition is fair, she does not sweat at night, and there are no chills. Cough, however, has frequently been very troublesome, and is severe, hard, and paroxysmal in character, and the patient's mother says that when she coughed severely she has noticed a bad smell with her breath for some days; this was perceptible to me two days ago." On the suspicion that there might be a small encysted accumulation of pus not drained by the openings, I made two exploratory punctures with the aspirator in the situation which seemed most likely, after making a careful physical examination, but with a negative result.

On 8th October it was noted that the cough was much less, and that the strength was increasing. The lower wound had contracted so much that it would not admit the drainage tube.

12th October.—Cough has been severe, and there has been a little frothy mucus expectorated. The breath is fetid

when the cough is violent. She has sweated much the last two nights. A probe was passed along the track of the lower wound, but there was no discharge.

14th October.—Yesterday, when coughing severely, brought up mouthfuls of purulent matter tasting "like rotten eggs;" thought she brought up half a teacupful. The cough has been much easier since, and the breath has lost its fetor.

23rd October.—The wounds are quite healed. The cough has been rather worse for two nights, but she does not sweat. She is able to go about the house. Breathing is audible all over the left side, save in the neighbourhood of the cicatrices.

I did not see the patient again until the 26th of January, 1882. She was then reported to have improved vastly in appearance, and was able to go about much as she used to, but she continued to have a slight cough without expectoration. Her colour was good, and she was in plump condition. She had, however, not been feeling right for about a week, and had had pain in the epigastrium and upwards in the sternal line. For two days the cough had been rather severe, with abundant purulent and bad smelling expectoration, and she had been sweating at night; to-day the expectoration was almost *nil*, the cough slight, and there was no fetor. The probable site of this accumulation could not be made out; the side was not at all retracted, and breathing was heard all over it, save in the region of the cicatrices. I asked her to let me know if she did not continue to improve. She reported herself on the 21st of February, when the cough was slight and there was no expectoration. She was gaining strength and flesh, and said she felt better than she had done since the commencement of her illness.

Remarks.—In this case, as in Professor Gairdner's, there was no communication between the lung and the primary pleural cavity, and there was no evidence whatever, at any period during the progress of the case, of pulmonary gangrene. The presence of a purulent and stinking expectoration on several occasions, after the drainage tube had been withdrawn, and preceded by severe and paroxysmal cough, pointed to a cavity which must have formed during the healing of the large one. This smaller cavity must, I think, from the clinical history of the case, be regarded as a pleural one, which, becoming over distended, led to irritation of the adjoining portion of lung, thus causing cough, and finally spontaneous cure by perforation. If we remember how favourable the physical conditions between the diaphragm and the base of the lung are for an islet of infection to become

surrounded and shut in by adhesions, which constitute the cure of such a case, we have a ready and sufficient explanation of this accidental element in the case.*

With reference to the pathogenesis of acute fetid empyema, there are a few points worthy of consideration. But before entering on that subject, I may say that my case was the second of its kind which Dr. Lockie had seen. He saw his first case in consultation, and after it had lasted for weeks, and the operation was performed too late to save life; this case, too, was only known to be fetid on aspiration. I have not attempted to fully explore the literature of the subject, but I find there are recorded in the pages of the *Lancet*, during the last nine years, five cases of fetid empyema, in none of which does it appear there was either pulmonary gangrene or pulmonary fistula. They may be briefly given here.

Case I, recorded by Dr. Wardell, of Tunbridge Wells (*Lancet*, 1867, vol. i, p. 600), died suddenly one night, and at the *sectio cadaveris* it was found that "the left thoracic cavity was absolutely filled with yellowish, dirty looking pus, of the consistence of thin cream, and which emitted a very foetid odour."

Case II occurred in University College Hospital, under Dr. Gowers (*Lancet*, 1878, vol. i, p. 310), and was diagnosed at first as diaphragmatic pleurisy of the left side. When aspirated, fetid pus was withdrawn. Thirty hours after the aspiration, a pulmonary fistula formed. The case recovered without operation. The patient became ill on 6th November, and was still in hospital, although practically well, on 21st January.

Case III was a child of thirteen months, under Dr. Goodhart (*Lancet*, 1878, vol. i, p. 828), from whose left side six ounces of "offensive pus" were withdrawn. At the second aspiration a little "inoffensive pus" was withdrawn. The child recovered without further operative interference.

Case IV was brought by Dr. F. Taylor before the Clinical Society (*Lancet*, 1879, vol. ii, p. 578); the fluid was purulent and fetid and on the left side. The result is not recorded.

Case IV, under Dr. Southey, at St. Bartholomew's Hospital (*Lancet*, 1877, vol. ii, p. 569), was a lad of seventeen years,

* The best paper with which I am familiar on the treatment of the secondary cavities which occur in empyema, is from the pen of Dr. Morgan, of Manchester (*Lancet* for 1881, vol. i), and is distinguished by a highly developed power of appreciation of clinical indications, and a bold and rational following up of these.

admitted on the 13th of August, aspirated on the 19th, and as the fluid was purulent and fetid, was operated on the same day. This was also on the left side. The last note recorded was on 14th October, when scarcely any pus was being discharged and one of the wounds had healed.

These five cases, with Professor Gairdner's case, Dr. Lockie's case, and my case, make eight. They have one common feature, namely, that they were all on the left side. Judging roughly of the cases recorded in the *Lancet* during nine years, empyema would appear to be much more common on the left than on the right side, while, on the other hand, it is maintained by some that it occurs in pretty nearly equal proportions on both sides. Of the last five cases under my care, three occurred on the left and two on the right side. One other point of similarity existed between Dr. Gower's case and my case: the pleurisy was diagnosed as diaphragmatic in its origin; and I am not sure that Professor Gairdner's case might not be claimed as probably having had a similar origin, for it is stated in the record of the case that the patient "lay on her back well supported with pillows, as the pain was worse when she attempted to lie on her left side;" this is an unusual observation in ordinary pleurisy: may it be that the additional rigidity of lying on the affected side threw more work upon the diaphragm of the same side, and that the increased pain was an evidence of the inflammatory action having attacked that muscle?

While avoiding theory, knowledge is not infrequently advanced by a consideration of such facts as we possess up to a given point; for the definition and appreciation of the known often fits us for the successful consideration of the unknown. Here we have eight cases of fetid empyema, in none of which does there appear to have been any evidence of either pulmonary gangrene or fistula to account for the fetid character they possessed. We further must assume that empyema does not spontaneously become fetid. These cases, further, all occurred on the left side, which is either an important fact or a vicious accident; if the former, we are constrained, in our search for a possible cause, to seek for it in the anatomical or physiological relations of the parts, and in this search only one relation can be found which may be of value in solving the difficulty, and that is the fact that the large intestine lies against the under surface of the diaphragm on the left side. It is also a fact that an abscess in the neighbourhood of intestine is, as a rule, fetid. Thus, if we are at all justified in assuming that an inflammatory process may attack the

diaphragm so severely as to implicate its entire thickness, may it not be that we have here a ready and a rational explanation of the phenomenon in question?

The progress of the case may be briefly given thus:—First seen, 1st September; aspirated, 8th September; incised, 9th September; drainage tube withdrawn from top wound, 1st October; drainage tube removed from lower wound, 8th October; probable date of complete cicatrization of skin wounds, 20th October, or earlier.

One practical lesson I learnt from the foregoing case, and that is, that general infection takes place through the incisions in the chest wall, and that if the general health of the patient had been lowered by postponement of the operation, or by other causes, the vital condition might not have so successfully coped with the septicæmic poison. To prevent this, I should, on another occasion, shield the newly incised surfaces by a liberal application of a strong chloride of zinc solution.

REPORTS OF CASES OF CHRONIC EXANTHEMAL CATARRH OF THE MIDDLE EAR.

By JAMES PATTERSON CASSELLS, M.D.,

Aural Surgeon and Lecturer on Aural Surgery to the Glasgow Hospital and Dispensary for Diseases of the Ear.

CASE I.—*Female, aged 25. Chronic exanthemal catarrh (rubeolar)—vel otitis media purulenta—cured.*

History.—In early life discharge from the right ear and abscesses in neck, due to measles. Pains at times in side of the head. Hereditary history good.

Present state.—Watch—right, $\frac{6}{7\frac{1}{2}}$; left $\frac{7\frac{1}{2}}{7\frac{1}{2}}$. The right membrana tympani is completely destroyed, and the lining membrane of the tympanic cavity is granular and hypertrophied. There is a carious spot on the posterior wall of the meatus near to the annulus tympanicus. The discharge is not copious.

Diagnosis.—Chronic exanthemal catarrh (rubeolar). She has nasal catarrh and is slightly catarrhal in constitution.

Prognosis.—Favourable to cure of morbid processes, but needs time. There is a danger of complications.

Treatment.—Improve general and local tone, and remove congestion of tissues by alcohol (60° o.p.), potash douche, cod oil, and cauterisation.

Result.—Dismissed cured in twenty days.

Case II.—*Male, aged 7. Chronic exanthemal catarrh (rubeolar)—vel otitis media—paracentesis—cured.*

History.—Has had bronchitis frequently from infancy; had measles three years ago, since which time he has been duller in the hearing. He is a "mouth breather."

Present state.—Watch—right, $\frac{1}{2}$; left, $\frac{1}{2}$. The membranæ tympanorum are very irregular and concave, and there seems to be mucus in the tympanic cavities. The naso-pharynx is highly congested.

Diagnosis.—The case is one of chronic exanthemal catarrh (rubeolar), with disturbance of the tension from nasal catarrh.

Prognosis.—Favourable to cure.

Treatment.—Improve the local and general tone, remove the congestion of the tissues, and restore the tension by Politzerising, potash douche, and cod oil. Removed mucus from the right tympanic cavity, and a little serum from the left.

Result.—Dismissed cured in two months.

Case III.—*Female, aged 5. Chronic exanthemal catarrh (scarlatinal)—vel otitis media purulenta—paracentesis—cured.*

History.—Had scarlet fever one year ago and got deaf. Since then the ears have been suppurating occasionally.

Present state.—Both membranæ tympanorum are irregular and opaque, and show signs of fluid in both. Both Eustachian tubes are catarrhal.

Diagnosis.—The case is one of chronic exanthemal catarrh of the tympana and tubes, occurring in a catarrhal constitution.

Prognosis.—Favourable to cure.

Treatment.—Remove congestion of tissues. Remove fluid from tympana, and improve general and local tone by potash douche and cod oil.

Result.—Dismissed cured, hearing well.

Case IV.—*Male, aged 14. Chronic exanthemal catarrh (scarlatinal)—vel otitis media, with accumulation in the tympana due to nasal catarrh—paracentesis—cured.*

History.—Two years ago scarlet fever, and since then deaf now and again. Is in good health. Hereditary history good. No pain; no discharge from either.

Present state.—Watch; right, $\frac{c}{72}$; left, $\frac{c}{72}$. The membranæ tympanorum are opaque and very concave. After Politzerising he hears better, and then fluid is heard and seen in both tympana. Both Eustachian tubes are catarrhal, but open. Naso-pharynx congested and relaxed, and adenoid.

Diagnosis.—The case is one of chronic exanthemal catarrh (scarlatinal), with accumulation in each due to the specific nasal catarrh.

Prognosis.—Favourable to cure.

Treatment.—Remove congestion of tissues of naso-pharynx and tubes. Remove fluid, and improve general and local tone by Politzerising, potash douche, cod oil, and paracentesis. Paracentesed the membranæ tympanorum, and removed a quantity of serous-like fluid from the tympanic cavities.

Result.—Dismissed cured in twenty-eight days.

Case V.—*Female, aged 25. Chronic exanthemal catarrh (scarlatinal)—vel otitis media—more recent Eustachian catarrh—great deafness—cured.*

History.—Since childhood, and after scarlatina, deaf in right, but only four weeks in left. No pain; no constant tinnitus; no discharge. Hereditary history good as to hearing, but is of the catarrhal constitution. She has to blame cold for recent attack.

Present state.—Watch—right, $\frac{c}{72}$ faint; left, $\frac{c}{72}$. Bone conduction good. Right membrana tympani opaque and very concave. Opacity due to thickening of all the layers. Left very concave, but otherwise nearly normal. Both Eustachian tubes are very catarrhal, and the right very narrow. The naso-pharynx is much congested and relaxed.

Diagnosis.—The case is one of old exanthemal catarrh of right, probably in slighter degree of left also, upon which more recent Eustachian catarrh has been grafted owing to bad nasal catarrh.

Prognosis.—It is improvable so far as the removal of the nasal catarrh is concerned, and this is possible.

Treatment.—Remove congestion of naso-pharynx and of tubes by Politzerising, potash douche, catheterising, and if there is fluid in the tympanum, by paracentesis. It is not certain that there is any fluid in the tympanum.

Result.—Dismissed hearing well in twenty-seven days.

CORRESPONDENCE.

MALPOSITIONS OF THE KIDNEY.

SIRS,—I have just perused a paper by Dr. David Newman on this subject in your current number, and I find in it an allusion to myself which you must allow me to correct.

Dr. Newman quotes my words to the effect that I have failed to find "any instance where, by reason of this kind of mobility, a 'movable kidney' has been an incident of any pathological importance." Of this sentence he says, "If Mr. Tait had taken the trouble to look up the literature of the subject, he would no doubt have come across them. I may mention two of these where it is distinctly stated that a meso-nephron was found to be present."

He then alludes to two cases recorded in the *Medical Times and Gazette* by Dr. Henderson and Dr. Priestley. In both of these cases there were mesonephra; but it is clearly stated by Dr. Henderson that, in the first case, it was a feature of not the slightest pathological importance; and, for Dr. Priestley's case, it is a mere misuse of words to call the five lines of its record "a description of a case," as Dr. Newman does. Even in these few words, not one occurs which even suggests that the movable kidney had any importance at all.

If I may judge from this thesis, I have taken a great deal more trouble over the literature of this subject than Dr. Newman has; and I do not think I have ventured to misrepresent or misinterpret any of the records I have investigated.—I am, &c.,

LAWSON TAIT.

BIRMINGHAM, 13th August, 1883.

18 WOODSIDE PLACE,
GLASGOW, 15th August, 1883.

SIRS,—I have to thank you for your kindness in permitting me to peruse the above letter by Mr. Lawson Tait.

As there is still a good deal of misunderstanding regarding the opinions which he holds in respect to the subject under discussion, I may be allowed to point out the change which he has lately made in his position. He does not now deny, as he did in his paper in the *British Medical Journal* of November last, the existence of "movable kidney" as a

pathological fact; but, after limiting the term "movable kidney" to those very few cases where the mobility is associated with a meso-nephron, and which in my paper are designated by the term "floating kidney," he states that he does not know an instance where it "has been an incident of any pathological importance." This he does without admitting the more common form of mobility—namely, movable kidney without a meso-nephron, to be an incident of either pathological or surgical importance.

My reasons for considering cases where there is a meso-nephron worthy of attention are clearly indicated in my paper, so that it is not necessary for me again to refer to them; in fact, I should not have troubled you with a reply to Mr. Tait's letter but for his reference to Dr. Henderson. This writer does not in the report of his case say that the mobility of the kidney, or the meso-nephron, "was a feature of not the slightest pathological importance," as Mr. Tait would lead your readers to infer. He records the case as one of "Movable Kidney connected with Spinal Disease," and begins his paper as follows—"In addition to the cases of movable kidney already recorded by Rayer, Oppolzer, Dr. Hare, Henoch, Dr. George Johnston, &c.—in all, I think, about thirty cases—I wish to publish the following, as there are some points of special interest attached to it, and which were elucidated by a *post-mortem* examination." He devotes a considerable portion of his report to the physical signs and *post-mortem* appearances of the displaced kidney. In the first portion of the report, he states that the patient consulted him "on account of a tumour in the abdomen, which she said she had observed for a long time, but she could not say exactly when she first noticed it; and, as it caused her no pain nor inconvenience, she had not paid much attention to it." Dr. Henderson diagnosed the tumour to be a movable kidney. Farther on in the report, the following remarks are found—"But she still complained of the shooting pains occasionally passing through the abdomen, and which she referred to the tumour. These pains being entirely distinct from the constant pain caused by the diseased vertebræ, I was at that time led to suppose the tumour to be of a malignant nature, and probably connected with the mesentery or omentum." During the life of the patient, Dr. Henderson first thought that the tumour was a movable kidney; afterwards, when the pain became great, he was disposed to believe it to be of a malignant nature; and after the *post-mortem* examination, when no malignant tumour could be discovered, he

supposed that the pain "must have been caused by the spinal disease."

In my paper I distinctly point out that in a number of cases of displacement of the kidney the patient may suffer very little inconvenience or pain, while in other cases the suffering is severe, and active surgical interference may be required for its relief; but whether the mobility of the kidney leads to severe symptoms or not, viewed from a pathological standpoint, it cannot but be regarded as of importance. Such a departure from the normal as the displacement of a kidney and the formation of a meso-nephron is surely a fact of some consequence when discovered during life, and one which no medical attendant is justified in putting altogether to one side.

Mr. Tait seems to think I have done wrong in calling the account of Dr. Priestley's case a description; but whether he admits the record to be a description or not, the fact still remains that it was a case of floating kidney, diagnosed correctly during life, and after death found to have a meso-nephron.—I am, Sirs, yours truly,

DAVID NEWMAN.

REVIEWS.

Politzer's Text-Book of the Diseases of the Ear and adjacent Organs. Translated by JAMES PATTERSON CASSELLS, M.D., &c., Aural Surgeon and Lecturer on Aural Surgery at the Glasgow Hospital and Dispensary for the Diseases of the Ear. Pp. 800. London: Baillière, Tindall, & Cox. 1883.

ENGLISH aural surgeons owe a debt of gratitude to Dr. Cassells for this excellent translation of Professor Politzer's work. The task has doubtless been a labour of love. We trust the love to some extent lightened the labour, which must have been considerable, as the professor's volume is in every sense of the word a heavy one. Its distinctive note is completeness. Every subject and every detail, from the anatomy down to the bibliography, is treated in the most systematic and thorough manner. The treatise, in fact, constitutes an admirable book of reference on all questions of aural surgery up to the date (1st part 1872, 2nd 1882) of

its publication. But it is honourably distinguished from most systematic works by the enormous proportion of original research and substantial achievement embodied in its pages. The earlier portions of the book devoted to the anatomy, physiology, and general pathological changes of the ear, materially differ from the accounts already in existence, as many of the statements have the interest of being made at first hand, instead of being quoted. But in the chapter on the inflation of the middle ear we recognise most clearly a masterpiece of inductive reasoning. It is perhaps to be lamented that Professor Politzer's literary style scarcely does justice to his own admirable scientific work. He discusses at length—too great a length, indeed—inflation by Valsalva's method, by the catheter, and his own widely used air bag. He quotes Hartmann's experiments, as showing that the average manometrical pressure required to effect Valsalva's inflation equals 20-40 mm. Hg. But very slight tumefaction of the Eustachian tube is sufficient to send the resistance up to 100-120 mm. without notable decrease in hearing power. Hence he deduces the practical rule that in inflammation of the middle ear, accompanied by swelling and secretion, the prognosis is more favourable in those cases where Valsalvian inflation can be effected than in those where the Politzer bag or catheter is required. He advises its routine employment at the beginning of every examination to determine this point. The chapter on the author's method is, of course, especially interesting. Experimentally he shows that penetration can be effected at pressures varying from 76 mm. to 304 mm., a pressure that can be attained by a rubber bag of 10 ounce capacity, forcibly compressed by a fairly strong hand. He lays great stress on the necessity of employing sufficient pressure in order to produce full therapeutic effect. Cases where no improvement in hearing is effected by a pressure of 0.1 atmospheres may immediately improve at 0.4. The superiority of the method over catheterism largely consists in the facility with which pressure can be increased, and the certainty with which a rapid and jerky motion can be imparted to the air. Only in certain cases occurring in aged people have we found catheterism sometimes succeed when the Politzer method failed. He expresses a preference for the instrument in its original form, in which conclusion most practical aurists will concur. The main objection urged against his method—that it causes rupture of the membrana tympani—is effectually refuted by showing that fourteen cases only were reported in thirteen years, and in the majority

of them permanent improvement in hearing occurred, a consummation rather devoutly to be wished than to be deprecated. Also very interesting, and containing much original matter, is the chapter on tests for hearing. The author, it is well known, has devised what he terms a universal acoumeter, which consists essentially of a small percussion hammer, pivotted so that it can be raised and allowed to fall by its own weight through a given arc on to a steel cylinder. By making each instrument to scale and weight, and carefully tuning the cylinder, a test that scarcely varies within ascertainable limits has been devised. Thus, by its general adoption, a uniform notation for one simple tone could be practically attained. But it will probably not replace to any large extent the use of the watch, which, if less uniform, is more convenient; and convenience counts for something in actual practice, even in these scientific days. A very elaborate account of the deductions to be made from the perception of sound through the cranial bones would repay tabulating and re-writing, as it is full of excellent clinical material somewhat unmethodically expressed.

Turning now to the more special division of the book, we find a good account of the general etiological data of ear disease. This is free from the specialist's common fault of neglecting to consider the remote constitutional causes that really form the starting point of the local failure of resistance. Much additional information on this head is worked into the sections treating of the special diseases. For instance, he rightly insists upon the part played by scrofula, anæmia, Bright's disease, &c., in influencing catarrhal inflammation of the middle ear. But the chapter is not free from generalisations that show us how little is really known upon the subject. In the account of subjective symptoms the description of tinnitus is neither so complete nor so philosophical as that given by Dr. Woakes.

In the section devoted to the common tympanic and Eustachian tube affections we have a mine of clinical information. He arranges the inflammatory disorders in three divisions:—1. The catarrhs. 2. "Those insidious forms, mostly accompanied with subjective noises . . . without demonstrative secretion or other phenomena of inflammatory reaction, . . . and in which the labyrinth is frequently affected. . . . The placing of this form of inflammation (called 'dry catarrh,' 'otitis media sicca'), among the true catarrhs is rather arbitrary, as its peculiar course, and especially its frequent complication with an affection of the labyrinth—

a rare occurrence in the true catarrhs—indicate a special character. 3. Acute purulent inflammation." This division, if not pathologically very pretentious, has the advantage of being clinically correct and valuable in practical work. In dealing with the slighter forms of inflammation, where perforation is not imminent, Politzer decides against paracentesis. He has observed in bilateral cases where one ear has been treated by paracentesis a lingering mucopurulent discharge that was not seen in the ear treated by inflation, &c. But in cases where on subsidence of acute symptoms the exudation cannot be removed from the cavity of the tympanum by inflation, paracentesis is valuable. He decides against injections of salt or soda through the catheter, or of forcible syringing from the external meatus. In acute purulent inflammation, he agrees with most practical aurists that the natural perforation should be anticipated either in cases in which there is much bulging of the membrane or severe pain continues in spite of treatment. He prefers the posterior inferior quadrant as the ordinary site for puncture as being most generally accessible; but, if the posterior wall of the external meatus is only slightly curved, the anterior inferior quadrant may be chosen. He thinks the direction of the wound has no influence on its cicatrization. Tough secretion is then removed by inflation, or by rarefaction by means of an air bag with a nozzle fitting the external meatus hermetically. He objects to injection of solutions of soda or salt by the catheter for the purpose of softening tough masses of secretion, holding with Roosa that, even with a perforated membrane, injections are likely to lead to increased inflammatory reaction. Indeed, throughout we recognise a most cautious spirit of treatment contrasting very favourably with the more meddlesome practice frequently extolled by others of less experience. He gives a wise caution that it is well not to continue the treatment of catarrhs beyond a certain time. After three to five weeks a cure, or the utmost improvement in hearing is effected, and a continuance of treatment results in an aggravation of the disease and loss of the hearing power already gained. A rest of from one to six weeks must be allowed before resuming "a rational after treatment." He approves of the enlargement of small perforations in chronic suppuration as facilitating the thorough cleansing of the cavity, on which he lays the utmost stress. He gives an unfavourable verdict on the value of tenotomy of the tensor tympani. On the whole his treatment

of the inflammatory affections of the middle ear is characterised by common sense and avoidance of all sensationalism. He is always scientifically cautious in his deductions, nor does he claim a greater amount of success for methods than facts justify. He speaks, on the whole, favourably of operations judiciously undertaken for the treatment of adhesive sequelæ after suppuration has ceased. He admits that the treatment is so far merely empirical, but that results have been attained which justify an operation "in a case for which nothing more can be done."

The operations from which he has seen improvement result are—(1) Incisions for the separation of adhesions of the membrane from the walls of the tympanum or to the incus and stapes. Care is required in diagnosing the locality of the adhesions before operating. He gives a detailed account of the most frequent positions. A spear-shaped knife is recommended. (2) Operations for the closure of a perforation. Perforations of 3 to 4 mm. in diameter have been reduced to 1 m., or even to a pin point, but complete closure has not been accomplished. Refreshing the edges by nitrate of silver seems the safest and most effectual method of proceeding. He especially cautions us not to attempt closure without experimentally ascertaining that the case will not be made worse by it. He speaks doubtfully of the prospects of closure by means of skin-grafts, though he quotes two cases in which a moderate degree of success is claimed by surgeons. In cases of polypi he places a high value on the treatment by instillation of alcohol. The subjects of naso-pharyngeal affections, diseases of the internal ear, cerebral disorders, injuries, the question of life assurance, and deaf-muteism are all fully discussed. In short, no subject is left untouched and no subject unornamented. The faults of the book are some slight defects in literary method and style that can be remedied by the industry of the reader. Its merits are a remarkable erudition, extreme common sense and caution in treatment, and a very marked originality in nearly every department. It is a great book that for once is not a great evil. Dr. Cassells has performed his arduous task well. The translation is, if anything, a little too exact to the German wording, and might possibly gain in places by a freer and more idiomatic rendering. From a scientific point of view it leaves nothing to be desired. The book is well printed and profusely illustrated by rather roughly executed but effective woodcuts.

The Principal Southern and Swiss Health Resorts: their Climate and Medical Aspect. By WILLIAM MARCET, M.D., F.R.S. 8vo, pp. 408. London: J. & A. Churchill. 1883.

WITHIN the limits mentioned above Dr. Marcet has drawn attention to a wide and varied field interesting to invalids and to medical men. The book is based chiefly on personal observation, and when this is the case, it bears the mark of a thorough and appreciative knowledge of the locality mentioned. His remarks, accordingly, on Nice and Cannes, where he spent some winters, can be cordially commended. The same criticism may be applied to his description of the Island of Madeira, and to his residence on the Peak of Teneriffe, the climate of which he considers "drier and better for the consumptive invalid than Madeira." Invalids, however, would have few home comforts, and would require to put up with "Spanish cooking and Spanish attendance"; and this, in the one case garnished with garlic, and in the other by insolent independence, would, we should fancy, materially detract from the climatic value of the place.

The chapter on the Swiss Health Resorts cannot be so favourably reviewed. It has evidently been hurriedly written, and is bald, meagre, and disappointing as a Bradshaw's Guide. The charming Valley of the Engadine, embracing St. Moritz and Pontresina, Tarasp and Samaden, is cursorily described in half-a dozen pages, while nearly a hundred are devoted to Madeira and Teneriffe. This is scarcely justice in a book which professes to be a guide to all, and we would recommend extension here, should a further edition be required, or an adequate tribute to the value of the Alpine health resorts.

What to do in Cases of Poisoning. By WM. MURRELL, M.D. Third edition. London: H. K. Lewis. 1883.

IF the value of a book may be justly inferred from its popularity, or from the rapidity of its growth, we may set this little manual down as one of the best. Three editions have appeared within a very short time, and it has grown considerably with each successive issue, the present edition being more than double the size of the first; "in fact, it is almost a new work," as the preface states, compared with the first edition.

Its object is to give "plain and straightforward directions for the treatment of the commoner poisons," and in this it is thoroughly successful. If the author, however, had said

"rarer" as well as commoner poisons, he would have been nearer the mark, as we have reference here to almost everything which might, under any circumstances, be considered a poison—from strychnine and prussic acid down to "hickery pickery," gin and pennyroyal, and "lords and ladies." The writer has also gone somewhat out of his way in regarding the medicinal rashes as coming within the presumed domain of such a work as this; such rashes as the acne associated with bromide of potassium or with tar, for example, belong rather to the habitual and prolonged use of these drugs than to the phenomena of acute poisoning, for the treatment of which this book is intended as a guide. A similar criticism applies to the discussion of chronic lead poisoning, "wrist-drop," and so on.

After a short introduction, full of excellent general advice, we have an interesting chapter on diagnosis, a list of drugs often used as abortifacients, and of the supposed ingredients of popular "patent preparations." In this section the author pronounces very decidedly against the supposed oxytocic action of quinine, at any rate in ordinary tonic doses.

The antidote bag is then very fully described, its contents and their uses being considered in detail. This bag, containing "every drug and instrument likely to be required in a case of poisoning," we are all advised to possess. Very excellent advice, but likely to be grumbled at by the practitioner who has already been invited to provide himself with "bags," "cases," and "complete sets" of instruments for every imaginable class of undertaking or emergency, from a major operation to urine testing. We quite endorse the author's views as to the propriety of being prepared for every possible emergency, and believe that such an arrangement as that here suggested would prove much more valuable and useful than most of those so freely advertised; but we submit that the "bag" nuisance is not the less a real nuisance, more particularly to those who are not specialists.

A note of some importance is that which Dr. Murrell makes regarding apomorphia. It is usually stated that one great drawback to the use of this drug is that its solutions are not stable, and have accordingly to be freshly prepared at the time of using. Solutions of apomorphia certainly become green in colour in a few days, almost black, in fact, in a few months, but this seems not to interfere with the activity of the drug as an emetic. Dr. Murrell has used, with prompt effect, solutions six months old.

The various poisons, from "acetic acid" to "zinc," are taken

up in alphabetical order. Few of any importance are omitted, and they are all discussed shortly but thoroughly.

The work abounds in excellent hints on the legal aspects of poisoning cases: how to do in cases of accident, suicide, or murder. The following is part of the author's advice regarding preparation for appearance in the witness box:—"Before giving evidence think over very carefully what you are going to say. Better to rehearse it a dozen times in the privacy of your own chamber than to break down in public. Arrange your facts clearly and concisely, and divest your language as far as possible of technicalities. Give your evidence slowly, for it has to be taken down, not only by the coroner, but by the reporters. Give it in your own way and do not be interrupted by any one. The coroner may stop you and say, 'Quite so, and then you applied the usual remedies?' This is all very well if you forgot something, but if your treatment has been strictly correct, let the court have the benefit of it." Regarding the *ptomaines* (cadaveric alkaloids), the advice is given that every medical man should get up all about them before giving evidence in a court of justice; this is important, as the defence in a case of poisoning might be that the reactions obtained in examination of the organs, especially of bodies which have been buried, were due to cadaveric alkaloids, and not to poison administered.

Another paragraph indicates one of the later developments of toxicological practice. "Think over carefully the questions you are likely to be asked, and be prepared to answer them. Read up the literature of the subject, and let your knowledge be up to date. If you do not know much about it, telegraph to some leading toxicologist and get him to coach you up in it, or at least to send you an abstract of the recent literature. It will pay you in the long run. Barristers constantly do this—why should not you?"

On the whole, this seems to be a compact and handy little manual; it treats practically of everything that can be considered as lying within its proper domain, and appears to be thoroughly reliable.

Medical Diagnosis: a Manual of Clinical Methods. By J. GRAHAM BROWN, M.D. Edinburgh: Bell & Bradfute. 1882.

AMONG the many text-books on the subject of physical diagnosis and clinical methods that have come under our notice, the present work by Dr. J. Graham Brown undoubtedly

ranks as one of the best. The subject is one which is difficult to treat in a systematic way, and which is best taught by and learned from demonstrations in the wards, at which students have an opportunity of using their eyes, ears, and hands for themselves. While, however, this is admitted, no one will deny that the student may be greatly benefited by having a good text-book beside him to which he can refer in reflecting over a past, or preparing for a future, demonstration, and such a book he has in that now under consideration.

The first chapter deals with "the general aspect, condition, and circumstances of a patient," and the remaining ones go over, in great detail, the methods of examining the different organs and functions of the body. In all works of this kind there is, as a rule, some degree of sameness in the method of treatment and in the arrangement of the facts discussed, and in certain parts the present one is no exception to the rule. While, therefore, we do not think that there is anything in the book which will not be found in most of the other good manuals of clinical medicine, yet the facts and theories are stated in such clear and concise language, and the arrangement adopted is so good, that the work cannot fail to recommend itself to the student. Besides, the teacher who is engaged in the conduct of small tutorial classes in the wards of an infirmary, feels the need of a good book, not only for the purpose of recommending it to his students, but also to help him in arranging the plan of his demonstrations; and for either of these purposes we do not think he will be disappointed with Dr. Brown's work.

Personally we have been greatly pleased with it, and have had, and will have, much pleasure in recommending it to students.

Practical Lessons in Elementary Physiology and Physiological Anatomy for Schools and Science Classes. By D. M'ALPINE, F.C.S. London: Ballière, Tindall & Cox. 1883.

THIS book is issued with a definite purpose. Its aim, as stated in the preface, is "to encourage the practical teaching and study of elementary physiology and physiological anatomy in our schools and science classes," and it is well adapted for this class of students. It starts with the wise idea that facts in natural history should be acquired at first hand. There is a very general belief that biology should form part of a modern education, and school boys are now expected to follow the example of the ancient augurs, and pry into the entrails of animals. This book will help them to do so intelligently and

profitably. Teachers will find it serviceable for reference in connection with more descriptive works. It is more an atlas than anything else, and its somewhat inconvenient form has been apparently required for the introduction of some of the larger figures. It is mainly anatomical, the physiological aspect of anatomy being kept well in view throughout. There are "twelve plates with practical directions and explanatory text;" but the text is little more than a list of the points to be observed, some slight description being added here and there. More detailed instructions as to the preparation of the parts would have been an advantage. The plates are almost uniformly good, and display the relations of the different parts and organs admirably. The first one is coloured, and they are all evidently the result of conscientious labour and careful observation.

A median longitudinal section of a newly born child forms the first subject, with a comparative view of the brain and heart of a sheep. The omission of the word "relatively" renders the statement that the liver becomes considerably reduced after birth misleading. The next plate represents a median longitudinal section of a rabbit, short instructions being supplied for the troublesome undertaking of preparing such a specimen. Here, as elsewhere, the names of the parts are printed on the plate in addition to the more detailed list given in the text. This is followed by an excellent plate of a dissection of a rabbit from the left side, which is perhaps one of the most instructive in the series. The skeleton of the rabbit next receives consideration, and the bones of this animal are compared with those of man. The muscular system of the rabbit is then shortly reviewed, and this is followed by its nervous system, with some of the more obvious features of the organs of sense and a note of the more important functions of some parts of the nervous system. The figures of the tongue and of the circumvallate papilla are inaccurate. The "evident papilla on each side at the back" of the rabbit's tongue is not a circumvallate papilla, but the *papilla foliata*, with its many ridges or folds, provided with numerous taste cones. Figure 4 would serve for a rough outline of a circumvallate papilla of such an animal as the sheep; but even there the taste cones should be represented as occupying the whole thickness of the epithelium. The alimentary system is the subject of the next two plates, the one of which has a general view of the viscera of the rabbit from the front, a dissection of the side of the head to show the various glands there, and a vertical section of the head, giving

the relation of the parts in the region of the throat, while the other comprises the small intestine, pancreas, submaxillary gland, and liver. The actions of the digestive fluids on starch, fibrin, milk, and oil are well stated in the text; but the drawings might have been omitted without loss for all the information which they are meant to afford is derived from the printed description. This would have given room for some further illustration of muscular action, such as that of antagonistic muscles or movements effected by combinations of muscles, a subject which rarely receives sufficient explanation to enable a beginner to realise the importance of noting the action of muscles as a key to their distribution. Under the heading of the circulatory system, there are some dissections of the sheep's heart, with diagrams showing the course of the circulation, and figures of the microscopic appearances of blood. Among the respiratory organs are views of the larynx of the sheep and of the rabbit, as well as the diaphragm and intercostal muscles. An outline of the urinary organs is added. The concluding plate is devoted to some of the main facts in histology. The figure of the muscle of the frog is not successful, and the epithelial cells close to the *stomata* on the *pleuro-peritoneum* of the frog have a much more markedly radiating arrangement than represented in figure 5, which rather resembles the silvered inner surface of the *cisterna lymphatica magna*—at least, this is the case in all the preparations which we have made. A list of the scientific names employed is given with their equivalent terms and derivations.

REPORTS OF HOSPITAL AND PRIVATE PRACTICE.

WESTERN INFIRMARY.

REPORTS UNDER THE SUPERVISION OF J. LINDSAY STEVEN, M.B.

FROM PROFESSOR GAIRDNER'S WARDS.

(Under the care of DR. JOSEPH COATS.)

CASE OF PNEUMO-THORAX occurring in a patient the subject of PHTHISIS, with SUBSEQUENT IMPROVEMENT in the symptoms of the latter.—[Reported by Dr. Stewart, House Physician.]

Mrs. W., age 28, housewife, was admitted to Ward VI on 18th June, suffering from phthisis pulmonalis. This was of eight months' duration, and the physical signs were, briefly, those of tubercular disease affecting both apices—the left, however, more than the right. This was indicated by dulness on both sides, with hollow breathing on the left side and muco-crepitant râles on the right.

The temperatures taken twice a day showed a marked tendency to excess in the morning over the evening. The great majority of the morning temperatures were highly febrile, and almost all above 100° , with a maximum of 104.6° F.; while of the evening temperatures, the absolute maximum was 103° , and a large proportion were below 100° .

During the first eighteen days of her residence in hospital, no other marked change occurred than a relative lowering of the morning temperature to 101.8° , the evening being 101.6° .

Pain was not present during this period, and the chief complaint of late had been diarrhœa. The expectoration was all along pretty considerable, was characteristically nummular, and, on microscopic examination, showed the tubercle bacillus.

On 6th July, after a fit of severe coughing, she was suddenly seized with pain in the left side, very intense, and accompanied by symptoms of collapse, there being, however, no marked orthopnœa. The decubitus at first was on the right side, but on the evening of the same day was dorsal. There was no lividity and nothing like suffocative symptoms. Pulse 132, respiration, 24. The temperature throughout that day did not exceed 97.6° . On examining the chest the following facts were observed:—The impulse and sounds of the heart were entirely on the right side of the chest, being most distinct at a point about $1\frac{1}{2}$ inches to the right of the middle line, at the level of the fourth rib. Over the left side respiratory murmur was almost entirely suppressed, a faint amphoric sound being all that was detected; while on the right respiratory murmur was ample and accompanied by râles of a coarsely crepitant and superficial character from the third rib downward.

Three days after the occurrence of the pneumo-thorax, she still complained of pain in the left side; but so far as regards suffering or serious dyspnœa, her general appearance did not at all correspond with the idea that such an accident, as was demonstrated by the physical signs, had happened to her.

During the next two days patient improved considerably,

though pain was still present. Her own sensations were of convalescence, and this so far corresponded with her appearance and expression. Up to this time, however, she had been unable to lie on either side, decubitus being generally dorsal.

Since the pneumo-thorax a considerable diminution occurred in the expectoration, but its characters otherwise were unaltered.

On 31st July the condition of this patient had undergone such a marked improvement as to admit of more detailed examination, and the following facts are noted:—

The percussion is tympanitic over the entire left side, and this tympanicity passes across the middle line and can be distinctly demarcated from the percussion of the right lung, although this is not always absolutely clear. The mediastinum thus displaced retires somewhat from the middle line in passing downwards, being $1\frac{1}{2}$ inches at the first interspace and 2 inches at the second. The line is here interrupted by the cardiac dulness, whose left margin bulges somewhat towards the middle line, reaching a distance of $1\frac{1}{4}$ inches from it; while the right margin passes obliquely downwards and outwards till it reaches the right nipple, the lower border corresponding nearly with the upper border of the fifth rib. Below the level of the cardiac dulness the tympanitic percussion again extends slightly farther from the middle line, reaching a distance of $1\frac{3}{4}$ inches. The right lobe of the liver is not markedly depressed, its edge in the nipple line being only about half-an-inch from the costal margin, and its entire vertical breadth here $4\frac{1}{2}$ inches. In passing to the left, however, the lower margin shows distinct depression, extending obliquely across to the left costal margin, which it reaches about the level of the lower border of the seventh rib.

At the back percussion over the entire left side is tympanitic, and even at the extreme base there is, if any, a very limited dull area.

Over the entire left side the respiratory murmur is suppressed or distant, and now and again a highly metallic echo is heard, especially on coughing. On testing with two coins, the most typical bell sound is heard all over this side, and accurately, up to the position of the shifted mediastinum.

This patient is still in hospital (16th August), and the improvement of the phthisical symptoms still continues. Expectoration very decidedly diminished, and the temperatures, taken twice a day, have only once risen to 99.4° during the first sixteen days of August; the mean temperature being,

morning, 98·1°, and evening, 97·8° F. No appreciable alteration has taken place in the physical signs. The treatment has consisted of a sedative cough mixture before the pneumothorax, and since that, $\frac{1}{8}$ grain of morphia with $\frac{1}{100}$ gr. of atropine have been given at night for the relief of pain.

FROM THE PATHOLOGICAL DEPARTMENT.

CASE OF TUBERCULAR PERITONITIS, WITH GANGRENOUS PERITYPHLITIS. [Reported by J. Lindsay Steven, M.B.] In the following note it is simply intended to give an account of the appearances observed after death. The body was that of a man who had been treated in Dr. McCall Anderson's wards for suspected perityphlitic abscess, and, as his symptoms were not improving, Dr. J. C. Renton was asked to explore the swelling by means of the aspirator. About four ounces of pale yellow fluid feces were withdrawn, and, although a very scanty light coloured deposit was thrown down, no typical pus corpuscles could be discovered in it. Some days after this it was determined to cut down on the abscess and evacuate it, which was done by Dr. Renton. The patient gradually sank and died in a few days.

A *post-mortem* examination was made on the 8th August, 1883, of which the following is an account.

The body, which was greatly emaciated, was that of an Albino, and the eyes were distinctly pink. There was a wound in the right groin communicating with the interior of the abdomen from which fæculent matter issued.

On attempting to open the abdomen in the usual way the peritoneal cavity was found to be practically abolished by the presence of most extensive adhesions. The bowels were glued together into a common mass, covered in front by the adherent omentum, which again was firmly bound down to the anterior wall of the abdomen. By careful dissection and with considerable difficulty the abdominal wall was separated from these adhesions, when it was found that the wound in the groin led to a cavity surrounding the situation of the cæcum; the caput cæcum, however, could not be discovered. The cavity, whose walls were in a perfectly gangrenous condition, and whose contents were mainly fluid feces, extended upwards behind the ascending colon as far as the lower end of the kidney; it was bounded externally and posteriorly by the wing of the iliac bone, and internally by the wall of the rectum and the matted intestines. The matted bowels, which formed the internal wall of the cavity, were quite black and gangrenous,

several of the loops of intestine communicating with it by large apertures. On passing the finger up the ascending colon in the direction of the caput cæcum, it was found to lead directly into the abscess cavity, after having passed through a portion of the colon which was perfectly necrosed and perforated by several openings. The caput itself and the vermiform appendage had entirely disappeared. Elsewhere, the walls of the intestines, the great omentum (which, as has been mentioned, was firmly adherent both to the bowels and the abdominal wall), and the peritoneum generally were beset with pale nodules, many of them exceedingly like miliary tubercles. The nodules varied considerably in size, the largest being about the size of a barley grain. In some situations they presented a caseous appearance, but, as on the whole they exhibited a close resemblance to the nodules observed in the case of questionable tubercular peritonitis reported in the *Journal* for August, page 148, one was not justified in pronouncing the condition a tubercular one without a microscopic examination.

The kidney, spleen, stomach, and other organs of the abdomen were quite healthy.

The pericardium contained a large quantity of perfectly clear serum, but the heart itself was healthy.

In the left lung were several areas of typical recent tubercular condensation, which, however, were not limited to the apex.

The right apex was entirely consolidated, and contained a small pus-filled cavity. The condensation, however, presented rather the character of fibroid than of caseous phthisis. The state of the lungs, therefore, was strongly in favour of the peritoneal condition being also tubercular.

After having completed the *post-mortem* examination, Dr. Steven made microscopic sections of several of the peritoneal nodules. They consisted of large, somewhat irregularly shaped masses of round cells, their centres having, in several instances, undergone the most complete caseation. Upon staining with Bismarck brown the cells at the periphery of the nodule assumed a bright and deep brown colour, whereas the central parts remained almost unstained. The microscopic examination, therefore, proved the tubercular nature of the peritoneal affection; but no definite information as to the cause of the perityphlitis could be obtained. However, it may be noted that, in turning out the contents of the cavity, a little hard mass of fæces, about the size of a small horse bean, and bearing a close resemblance to the concretions so frequently

found impacted in the vermiform appendage in similar cases, was discovered. It is probable, therefore, that the perityphlitis in this case had originated within the cæcum in the usual way, but whether its peculiarly aggravated condition was due to a pre-existent tubercular peritonitis, or whether the peritoneal affection had been set up by the disease of the cæcum occurring in a tubercular subject, it is difficult to say.

GLASGOW EYE INFIRMARY.

TWO CASES OF HARD CHANCRE OF THE EYELID.

(UNDER THE CARE OF, AND REPORTED BY, DR. T. S. MEIGHAN.)

THE two following cases are of interest, in so far that the eyelid is a very uncommon position for a chancre, and, as a point of great value in diagnosis, that the lymphatic glands were much enlarged and hard, because it is seldom that eyelid affections lead to enlarged glands.

CASE NO. I.—J. D., aged 20, was admitted a patient of the Eye Infirmary, 11th July, 1883, with a large ulcer on the cutaneous surface of the left upper eyelid. The ulcer began as a small pimple on the border of the lid at the inner side, about eight weeks previously; a few days before that time he had been on a holiday to Ardrossan. When the small pimple or styne was forming, he was advised to poultice it with bread and milk, and in a few days it broke and discharged a little matter, but he noticed that the swelling, which felt somewhat hard, did not subside. The whole eyelid became of a dusky red colour, the swelling gradually increased, and felt harder, the ulcer spread on the surface, and the eyelid felt very painful when touched.

He was again advised to poultice it at night, and apply an ointment during the day, but it gradually got worse.

The ulcer extends from the middle of the left upper eyelid, over nearly the whole of its inner half, spreading round the tarsal border, and invading part of the conjunctival surface; it also extends round the inner canthus, coming to the lower lid. The edge of the ulcer is smooth, and but slightly raised above the rest of the surface. The ulcer and eyelid are purplish coloured and considerably swollen—so much so, that

he is unable to raise the lid. The ulcer and neighbouring swollen part of the lid feel cartilaginous. He complains of considerable pain, and shrinks when the lid is raised. There is not much discharge from the ulcer or eye; the pre-auricular and sub-maxillary glands are very much swollen, especially the latter, which are tender when touched.

On examining the mouth, the right tonsil is slightly swollen, with an ulcer on its surface. There are also a few reddish spots scattered over his brow and chin; his body is also covered with a roseolar eruption, which he states only appeared a few days ago.

Says he has never had any venereal disease, and has not been exposed to infection—although he kept company with two lads who had venereal disease, and may have had communicated to him some of the matter from their sores, as he had something to do with their dressings.

He was taken as an indoor patient, so that the case might be watched. The ulcer was painted over with an eight grain solution of nitrate of silver, and an ointment of vaseline and oxide of zinc to be applied on lint with a compress and bandage; he was also ordered *Mist. Hydr. Biniodid.*

On *24th July* the following note was made:—Ulcer healing; hardness and swelling less; colour not so deep red; ulcer touched with sulphate of copper.

2nd August.—Ulcer still healing, and touched again with sulphate of copper; the swelling and hardness have so much decreased that he is now able to raise the lid; glands in the neck much reduced in size, and the throat is better; eruption of a faint coppery colour, but gradually fading.

10th August.—Discharged very much better. He has now the use of the eyelid, and his general health is improved.

CASE NO. 2.—A. H., aged 24, admitted a patient of the Eye Infirmary, 28th March, 1873, complaining of a sore on his eyelid, which was much swollen; the glands on the side of his neck were also affected. A large ulcer on the right lower eyelid occupies nearly the whole of the surface of its outer third; the edge of the ulcer is not much elevated; the ulcer and surrounding skin are livid in colour; the whole eyelid and upper part of cheek are swollen, and feel hard; the pre-auricular and submaxillary glands are considerably enlarged and painful. On examining the mouth, ulcers are seen on the lips, tongue, and tonsils, and a roseolar eruption is scattered over the body and front of arms.

States that three months previously he fought with a lad, and got a black eye; a girl who was with him pricked the

swelling on the eyelid, and sucked it to draw out the blood; by this means a good deal of blood was taken away. In a few days after the wound began to swell, and he felt it painful, and it soon developed into a small ulcer, which gradually increased in size; the swelling and hardness also became more marked. He has never had any venereal disease, but learned since that the girl had been suffering from a skin eruption on her body, and her mouth was also affected, and thinks that he was affected through her.

He was ordered a lead lotion for the ulcer, and a Plummer's pill night and morning. Under this treatment the ulcer soon healed, and the other symptoms soon yielded to the treatment, so that on the 2nd June, 1873, he was dismissed well.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1882-83.

MEETING VII.—6TH APRIL, 1883.

DR. GAIRDNER, *President, in the Chair.*

MR. WM. BAXTER, M.B., C.M., Crookedholm, Kilmarnock, was elected a member.

DR. WILLIAM MACEWEN read OBSERVATIONS ON THE RADICAL CURE OF HERNIA, and exhibited two adult patients in whom the operation had been performed.

Mr. Clark said that the two cases exhibited showed admirable results in elderly men. The complete closure was very remarkable in these cases, taking into account the relaxed condition of the parts and the size of the rings. His own preference had been for Wood's method, which gave generally satisfactory results. His experience, however, led him to think that Wood's needle was too long, and he had been in the habit of using a nævus needle; but the needles exhibited by Dr. Macewen had a better curve, and were very strong.

Dr. Whitson said that he had assisted in the operations in the cases exhibited. Antiseptic precautions were used from the outset, and the sutures used were of chromic catgut.

These were much superior to silver wires, which had the disadvantage of want of pliancy, and their presence caused inconvenience to the patient, while catgut was perfectly pliant, and was absorbed in the tissues. Chronic catgut was especially valuable in many operations, especially as a button suture.

Dr. Morton said that any operation which promised to remedy this very dangerous condition deserved to be fairly tested. Many operative procedures had been tried for the radical cure of hernia. *Mr. Syme* tried the smearing of bougies with cantharides plaster, and pressed these up the canal to cause agglutination there. Then there was the treatment by Professor *Pancoast* by tincture of iodine injections. The subcutaneous ligaturing of the sac at its origin he had himself tried, and with some success in cases of small opening. The staple suture was another method; but he never saw much good accrue from these modes of procedure. Success at the best was only temporary. No operation could effect permanent good which did not bring the sides of the ring together, and keep them together. The comparative immunity of operations in the peritoneum justified them in cutting down freely and stitching the sides together.

Dr. Macewen saw that the difficulty of keeping sight of the cases always carried some doubt as to whether the cure was ultimately complete. With regard to the use of the spray, he might mention that, though its employment was not now seen in most of the German hospitals, the antiseptic precautions used in these were very complete. Any decorations which would serve to accumulate and preserve dust were excluded, though this did not involve the absence of artistic surroundings in the wards. Before operations, the room was steamed with spray for some hours; similar care was taken by the surgeons in respect to their clothes and persons; they operated in an antiseptic atmosphere. In respect to the use of trusses, many would appear to look on the use of them as sufficient; but it should be remembered that the use of these debarred the patient from many occupations and enjoyments. Operations for the radical cure were, therefore, to be welcomed.

MR. HENRY E. CLARK and DR. ROBERT PERRY read TWO CASES OF INTESTINAL OBSTRUCTION: THE ONE TREATED BY COLOTOMY, AND THE OTHER BY ABDOMINAL SECTION.

Dr. Morton said that it was rare to find the obstruction so low down as in the last case of *Mr. Clark*. Another point was this: what part the fæces themselves had played in

causing this, and whether the introduction of the hand at the beginning might have caused them to come away?

Dr. Johnston Macfie said that he had seen in a London hospital a case in many respects similar to the one narrated by Mr. Clark, but in which the cause of obstruction was found on *post-mortem* examination to be a biliary calculus as large as a walnut lying above the sigmoid flexure.

Dr. Macewen said that if the same quantity of oil and water had been thrown up at the earlier stage there might have been relief. The twist could be set right only by clearing out the contents. He would suggest that they should not keep these cases so long.

Dr. Perry remarked that this case had been under surgical observation at an early period.

Mr. Clark said that, in reference to the obstruction being so far down, volvulus very commonly occurred at the sigmoid flexure, and worked down afterwards. In regard to Dr. Macewen's suggestion, the passage of the tube after operation was under very different conditions from what it was before the operation, as the half twist had been undone.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1882-83.

MEETING VI.—13TH MARCH, 1883.

The President, PROFESSOR M'CALL ANDERSON, in the Chair.

DR. ROBERT FORREST showed the temperature chart of the case of ENTERIC FEVER WHICH HAD TWO RELAPSES reported in this *Journal* for May. (P. 368.)

DR. PERRY showed a ROUND CELLED SARCOMA of the stomach, of which the following are notes:—J. M., æt. 30, a hammerman, was admitted into Glasgow Royal Infirmary on 5th December, 1882, complaining of severe cough and spit, with swelling of the feet and ankles. The cough has lasted for several winters, but he has not been laid up with it until three weeks ago. His feet commenced to swell a fortnight since, and the swelling has been gradually increasing. He is troubled with frequent micturition during the night, and he has a pain in his back, not, however, very severe.

His father died from the results of an accident. His mother died of bronchitis at an advanced age.

He himself has always been healthy, with the exception of a winter cough, until the present attack. He is often much heated at his work, and thus exposed to cold, but he is not aware of any special exposure lately to either cold or wet.

The right front of the chest is slightly dull upon percussion, and the breathing is weaker than on the left side. Behind, the percussion note is normal, but some fine crepitations are heard on the right side, and sonorous râles on the left side. Heart normal. Pulse of fair strength. His tongue is pretty clean. His appetite is moderately good. He has no pain after eating, and has never vomited his food. The bowels are rather costive, and he is often troubled with flatulence.

The abdomen is tense and enlarged, but no fluid can be detected in it.

A large, irregularly shaped, hard mass is felt through the abdominal walls, commencing about the position of the pyloric end of the stomach, and extending towards the umbilical region. Over the tumour the percussion note is dull; but between the lower border of the liver and the upper margin of the tumour there is a distinct space where the percussion note is clear. The mass is slightly movable, and pressure upon it gives rise to only very slight uneasiness. He has never complained of much pain in his abdomen.

The hepatic dulness is only very slightly increased.

Both feet and legs are œdematous, and pit on pressure as far up as the knees. Urine, sp. gr. 1020, acid, deposits urates, and contains a large amount of albumen.

A diuretic mixture was prescribed.

12th January, 1883.—The patient is evidently becoming weaker, and has a decidedly cachectic look. His appetite remains pretty good, he has never had any vomiting, and is able to take milk with rice or other farinaceous food, which has been his main diet since admission. The swelling of his limbs has rather increased, and the urine still contains a large quantity of albumen. His bowels are constipated, and have to be relieved by medicine and enemata. He sleeps very little at night, but is often in a dreamy state, from which he is easily roused by any noise.

His diuretic mixture was discontinued, and stimulants were prescribed, with a dose of potassium bromide at bedtime.

15th January.—Patient rather worse, and feeling weaker. He is very uneasy, and lies with his head hanging over the

edge of the bed. No change in the abdominal symptoms, and very little pain complained of.

18th January.—Died to-day.

Dr. Newman gave the following account of the *post-mortem* examination:—

Thorax.—Both lungs are adherent, but crepitant throughout. The bronchial mucous membrane is thickened, the vessels injected, and the surface covered with bloody mucus. The heart is pale, soft, and flabby. The pericardium over right ventricle is thickened. The endocardium and valves are normal, and the myocardium, although pale in colour, does not show any evidence of fatty change.

Abdomen.—On opening the abdomen a large pale mass is seen about two and a half inches below the margin of liver. This mass is separated from the liver by a portion of stomach, and when examined more carefully the whole of the mesentery is seen to be involved in the tumour.

The points of greatest prominence correspond in situation to the mesenteric glands, and the growth extends outwards at some parts so far as to involve the small intestine. At other parts it stops short of this, so that there is a portion of healthy mesentery between the tumour and the bowel. Where the intestine is involved in the disease, only the part next to the mesentery is thickened, and becomes incorporated with the rest of the tumour. The portion of the bowel, away from the mesentery, is normal in appearance.

The stomach is distended, and on opening the organ the pyloric end is found to be greatly thickened, but there is no constriction of the cavity. The thickening of the walls extends from the pyloric orifice backwards for a distance of about six inches. The thickening is uniform, and only shades off at its upper and lower margin; this portion of the tumour is pretty firm, of a pale yellowish-white colour, and on pressure no fluid escapes. There is no evidence at any part of the tumour—intestines, mesentery, or stomach—of contraction; so that, throughout the whole alimentary canal, there is no narrowing further than what might be due to pressure of the tumour.

There is no fluid in the abdomen.

Beyond being slightly congested, there is nothing positive to be noted with regard to the conditions of the liver. It is perfectly free from the tumour just described, nor are there any secondary nodules to be found.

The spleen is normal.

The kidneys are normal in size. The capsules are slightly adherent, and there are several cicatrices on surface of both

organs. The medulla is somewhat paler in colour, and the line of separation between medulla and cortex is indistinct. The tissue is unduly firm, but there is no alteration in the thickening of the cortex. On the surface of both organs, and extending into the substance of the kidney for about an eighth of an inch, there are several small pale masses resembling in appearance the tumour found in the stomach. These nodules are of a pretty uniform size—namely, that of a split pea.

Brain.—There is nothing remarkable about the external appearance of the brain. Interior not examined.

Microscopic Examination of Stomach.—A section made of the tumour, about two inches above pylorus, shows it to be composed of small round cells, embedded in a not very abundant homogeneous matrix; at some parts of the tumour the round cells show a slight tendency towards the spindle-shaped form, and this is particularly noticeable towards the centre of the section, where the tumour is richer in blood-channels than elsewhere.

There are only a few large blood-vessels to be seen, and the walls of these are formed by a concentric arrangement of spindle cells; the smaller blood-channels pass between the round cells, and are seen by the low power as bright linear spaces. Their presence is detected more by an absence of stroma cells at certain parts than by any alteration of the distribution and structure of their elements. No normal structure apparent.

The mesenteric glands and intestine present the same microscopic appearances as the section of the stomach.

Kidney.—There is slight increase of the interstitial tissue. The tubules are distended and their epithelium is granular. At one point of the section there is a small round nodule which completely displaces the proper renal tissue; the microscopic structure of this growth is similar in appearance to that found in the abdominal tumour.

Dr. Joseph Coats regarded this as a specimen of lympho-sarcoma. He thought that in all probability it had originated in the mesenteric glands, and in the progress of its growth had converted the pyloric end of the stomach and parts of the intestine into its own structure. It was, therefore, to be regarded as primarily a lympho-sarcoma of the mesenteric glands, which had gradually moulded itself upon and destroyed the tissue of the structures among which it was situated. He referred to a case which he had met with, in which a lympho-sarcoma, originating in the mesenteric glands, had extended to the

small intestine, and converted a considerable length of it into a thick tube, composed of the tissue of the tumour which had replaced that of the intestinal wall. The present case he regarded as of a similar nature.

CASE OF EPIDEMIC (?) CEREBRO-SPINAL MENINGITIS IN GLASGOW.

DR. FINLAYSON showed the brain and spinal cord from a case of ACUTE CEREBRO-SPINAL MENINGITIS, and also a water colour drawing, made by one of his pupils, showing the appearances in the perfectly fresh state. The exudation, which was very well described by the standard phrase, "gelatino-purulent," occupied the convexity of the brain, chiefly in the anterior portions, and particularly filling up the sulci between the convolutions. Some exudation was found at the optic commissure, and the fissures of Sylvius were slightly adherent, but very little comparatively was found at the base of the brain. On laying open the spinal sheath, nearly the whole of the posterior aspect presented the same "gelatino-purulent" exudation which could not be readily scraped off, being involved in the meshes of the sub-arachnoid space and the pia mater; the exudation extended from the cervical enlargement downwards. Practically, no exudation was found on the anterior aspect of the cord. The structure of the cord itself seemed unaffected. This character and distribution of the products of an acute inflammation of the cerebro-spinal membranes agreed very closely with the description of that form of disease termed "epidemic cerebro-spinal meningitis," or "cerebro-spinal fever." The spleen was enlarged, weighing $13\frac{1}{2}$ oz., and of somewhat solid existence. The patient, a young man, a native of the West Indies, was 18 years old. He had come a year or two ago to Glasgow to learn engineering, but had for some months done little or no work, being apparently much given to drinking and other forms of debauchery, and he had kept very late and irregular hours; his lodgings, however, were good. There was no history of syphilis. His general health seems to have been far from robust, and he had long been troubled with a cough. This gave, during his life, some colour to the idea that a tubercular meningitis existed, although no definite signs of disease could be made out in the lungs, and, as the *post-mortem* examination showed, the only chronic lesion there was a slightly emphysematous condition.

He was admitted on Friday, 16th February, 1883, and died

on 20th February. He had been out on Sunday, 11th February, and had walked a mile or two without an overcoat, in a somewhat cold wind, but he was apparently as well as usual. Next day he became ill with feverish symptoms and headache, with pain in the limbs and stiffness of the muscles especially of the neck. Dr. Macmillan, who saw him, thought he was suffering from an attack of intermittent fever, to which he had been liable occasionally, and he ordered quinine. Some sickness and vomiting occurred, and the bowels were confined till acted on by medicine. The pains and the feverishness continued notwithstanding this treatment and the use of Dover's powder and bromide of potassium. He seemed at times in great agony, and Dr. Macmillan ordered his removal to hospital. On admission he was found to be semi-delirious, unable to walk, or even to stand, suffering much from pain in the back and lower limbs; his head was drawn backwards, and he complained much of pain on being moved, especially about the neck. He said he was unable to pass water, so a catheter was introduced, but only a few ounces of urine were removed. Although a little incoherent and wandering in his remarks, he could answer when strictly questioned, and kept to the point; and the information he gave seemed quite correct. He seemed to have had double vision at one time, but this had passed off, and only occasionally could a slight squinting be recognized. There seemed to be nothing wrong with the eyes except a little injection, and there was no affection of the hearing. His temperature was high, about 102° or 103° ; his pulse 96, full and strong, but a little irregular in its rhythm; the red mark, on stroking the skin (*tache cérébrale*), was very marked. Although unable to stand, and complaining loudly when turned over on his side or made to sit up, there seemed no special tenderness on handling the limbs, and he could, while in bed, move both arms and legs with some force and without pain, although he seemed to prefer to lie with his knees somewhat bent. The urine was high coloured, and contained no albumen. There was some retraction of the abdomen. The resident assistant, who received the patient, regarded the case as one of spinal meningitis. When seen next day, Dr. Finlayson thought it more probable that the case was one of cerebral meningitis, with marked retraction of the head, and that the pains in the limbs complained of, which seemed very variable in character, were due rather to the hyperæsthesia, often present in cerebral meningitis, than to spinal mischief. The head was shaved, moderate cold applied, and, after further purgation, iodide of potassium and bromide of potassium were

ordered. The cerebral symptoms deepened. Once after admission he passed water himself, but incontinence of urine and fæces supervened. Slight but distinct twitchings of the fingers appeared on 18th February; he swallowed his fluid food without difficulty. The only thing in the form of an eruption was a slight herpes at the right angle of the mouth. By the 19th February he had become less distressed and more apathetic, and inclined to dose—not crying out, but able to answer a little when spoken to. A slight yellow discoloration of the conjunctivæ and skin had appeared. The twitchings became more pronounced, and involved the mouth as well as the hands. The temperature remained high, 102° to 104° , and the respirations became rapid, laboured, and noisy; and for two days before death assumed something of the “Cheyne Stokes rhythm.” The pulse ranged from 120 to 140. He died on the 20th February, without any new symptoms, except the deepening of the coma; the terminal temperature was $105\frac{1}{2}^{\circ}$ F. Dr. Finlayson said he regarded the case during life as one of cerebral meningitis, although at the bed-side he spoke of the persistently high temperature as being very unusual, at least in the ordinary basilar meningitis, associated with tuberculosis (to which the chest symptoms pointed as probable), and in this connection he thought a meningitis of the convexity a possible explanation.

The *post-mortem* examination, made by Dr. Joseph Coats, raised the question of cerebro-spinal meningitis of the so called epidemic type, and he made inquiries at Dr. Russell, as officer of health, to see if any traces of such disease had been detected by his department; but, after investigating one or two doubtful entries, no probability of the existence of this disease in Glasgow could be made out. Dr. Finlayson said that this disease seems to have occurred only in a sporadic form in England—apparently in a distinctly epidemic form in Ireland about 16 or 17 years ago—and, so far as he could discover, not at all in Scotland. After a perusal of the reports by Dr. Burdon Sanderson and Professor Hirsch, and also of the admirable account by Dr. Collins in the *Dublin Journal of Medical Science* (August 1868), Dr. Finlayson was of opinion that this case agreed essentially with the description of this formidable disease, both in its clinical and pathological characters.

Dr. Joseph Coats remarked on the very striking appearances presented by the brain and cord in this case. There was a thick yellow exudation occupying the sulci, between the convolutions, chiefly on the convexity of the brain, and a similar

exudation confined to the posterior aspect of the spinal cord, and most extensive in the lumbar region. This extraordinary inflammatory condition was unassociated with any obvious cause, and yet we must presume the existence of some violent irritant to produce this very striking result. The lesions were virtually identical with those met with in cases of *epidemic cerebro-spinal meningitis*, and in this disease there is a specific virus present, the virus presumably circulating in the blood and attacking specially the soft membranes of the brain and cord. It is not to be regarded as very extraordinary that the virus should attack this special structure, as it is quite consistent with what occurs in the case of other viruses. That of small-pox attacks specially the skin, producing violent inflammations of it; that of hydrophobia affects particularly the medulla oblongata and spinal cord, and the salivary glands; that of dysentery and cholera the intestine, &c. Seeing that, in the present case, the structures attacked and the appearances of the lesion are identical with those in epidemic cerebro-spinal meningitis, the question arises whether the virus is the same. It is not impossible that this may be so, and that there are only wanting some special circumstances to induce the extension of the virus and an epidemic of the disease. It has been supposed by some that the black death of the Middle Ages is this same disease—epidemic cerebro-spinal meningitis. If this be so, then it is an impressive fact that we are in the presence of the virus which formerly worked such havoc among the inhabitants of this and other lands.

Dr. Robertson demurred to the assumption of *Dr. Coats*, that there was some special virus present here. He agreed that the appearances were like those of the epidemic disease, although there were some points of difference. He would like to know how this case might not be one of simple meningitis.

Dr. Coats replied that he could not understand what was meant by simple acute meningitis. In order to an acute inflammation there must be some violent irritant at work, and he had never seen a case which he would be prepared to call simple acute meningitis. Cases which go under this name mostly originate either in disease of the bones of the head or in injuries to the head. If there is no such cause apparent, then we must assume a virus brought to the membranes. Where the evidences of the action of the virus are so striking, and such a wide extent of the membranes of the brain and cord is involved, and where the analogy to the known specific disease is so close, we are forced to the conclusion that a virus has been conveyed by the blood.

DR. M'CALL ANDERSON gave notes of a case of MEDIASTINAL TUMOUR, of which the following is an abstract. The patient, a male, 51 years of age, was admitted into the Western Infirmary of Glasgow, 9th February, 1883. His family history was obscure, and threw no light upon his complaint:—

About 12 years ago, after exposure to inclement weather, he complained of a burning pain in the right infra-clavicular region, which does not appear to have been very severe nor aggravated by respiration, and which was unaccompanied by other symptoms. It was treated by means of the application of iodine to the chest wall, and disappeared in about a week.

With this exception he enjoyed good health until the beginning of the winter 1881-82, when he caught cold and was much troubled with cough and expectoration. These symptoms never entirely left him, although he was nearly free of them during the greater part of last summer. He remained fairly well till about 4 months before admission, when, after an unusually hard day's work, he got a chill and felt very shivery. He seems to have been feverish during that night, and next day his cough became very troublesome, and continued so ever afterwards. From the onset of this last attack, shortness of breath was increasingly complained of until at last he was unable to lie down in bed. Two months before admission his hands and arms became swollen, but no other part of his body, and latterly he has rapidly lost flesh, strength, and colour. On admission he was in a state of extreme debility, was greatly emaciated, and very anæmic, but there was no fever; there was considerable cough, with abundant frothy mucous expectoration and orthopnoea. At the base of the right lung the usual signs of pleuritic effusion, including slight fulness and depression of the liver, which did not alter its position with the respiration, were discovered. Twenty-six and a half ounces of a straw coloured fluid, which coagulated pretty firmly on cooling, were withdrawn by means of Southey's trocar. At the upper part of the same side of the chest, in front, there was flattening in the supra and infra-clavicular regions, with some prominence of the lower part of the manubrium sterni, marked dulness on percussion, which extended for 2 inches to the left of the middle line, a total absence of vesicular sound, but slight distant tubular breathing below the clavicle. The right radial pulse was distinctly weaker than the left. The veins of the head, neck, upper extremities, front of the chest, and abdomen were markedly varicose, and there was œdema of the upper extremities, very marked on the right side. These symptoms led Dr. A. to conclude that there

was a tumour in the anterior mediastinum, which had encroached on the right lung, and that in all probability it was of a malignant nature:—(1.) Because that is the most common form of solid tumour within the chest. (2.) Because of the age (51), and sex of the patient. (3.) Because of the rapid development of the symptoms (4 months). (4.) Because of the great loss of flesh, strength, and colour. (5.) Because of the inflammation (pleurisy), which had been excited within the chest. The patient died 18th February, nine days after admission.

Dr. Joseph Coats, who made a *post mortem* examination on 20th February, 1883, stated that the tumour shown was a good specimen of a lympho-sarcoma, which had involved the pericardium, superior cava with its branches, and the bronchi. It was interesting to compare this specimen with that exhibited by *Dr. Perry*. They were both of essentially the same nature, and worked up the neighbouring tissues in the same way. In this case the tumour had commenced in the mediastinal glands, and had involved the superior cava, bronchi, lung, and pericardium exactly in the same way as the tumour shown by *Dr. Perry* had involved the stomach.

M E D I C A L I T E M S .

UNDER THE DIRECTION OF

ALEX. NAPIER, M.D.

On the Vaginal Speculum.—*Dr. W. L. Reid* has contributed to *The American Journal of Obstetrics and Diseases of Women and Children*, for March, 1883, a paper on the above subject. The following quotations embody the principal points in the paper, and they are illustrated by the woodcuts kindly lent by *Dr. Reid*:—

“The following may be considered to be the chief desiderata in a good speculum:—1. That it shall show well the cervix and upper part of the vagina. 2. That it shall not greatly distort the parts. 3. That it shall be so adaptable to individual vaginæ as not to give pain. 4. That it shall be self-retaining, and thus leave both the operator’s hands free. 5. That it shall give free access to the cervix for operative

interference. 6. That it be simple and easily kept clean. 7. That it be easily carried and not easily broken. It may be argued that it is physically impossible to combine all these advantages in one instrument, and this is probably true, but the more nearly we can do so the better."

"The idea with which I started may be thus expressed:—Two parallel blades starting from the centre of a curved bar on which they slipped easily, would diverge at their points, so as to strain open the upper and larger part of the vagina, and thus show the cervix while not unduly dilating the vulvar orifice. The blades retained their position because the elasticity of the vaginal walls caused them to lock on the bar. So far as I know, this method of fixing the blade is original. This instrument was used for a little while, but it was found

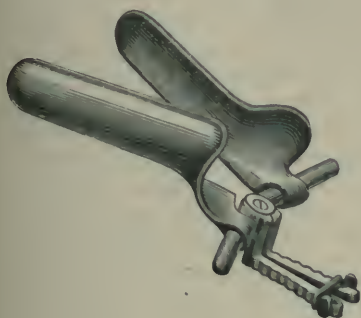


FIG. 2.



FIG. 3.

W L R

to be a serious disadvantage that the opening of the upper and lower parts of the vagina could not be made independently. This led to various modifications, and eventually to that I am about to describe. The instrument, Figs. 2 and 3, consists of two blades an inch and a quarter broad, the anterior three and a half, and posterior four inches long. These are flattened at the points, but otherwise like those of Cusco's bivalve. The bar on which they slide is hinged in the middle, so as to permit the uterine ends of the blades to be separated from each other to the extent of four inches. From the jointed ends of the bar, or rather bars, for the hinge divides it into an anterior and posterior part, two legs proceed which are notched on their external surfaces, and have two flat finger pieces at the ends. When these ends are pressed

together, the bars form an obtuse angle at the hinge, and thus the blades are caused to diverge at their points. When it is desired to retain the blades at a given degree of divergence, a catch, which consists of an oblong piece of metal surrounding the legs, is made to slip down along them, and fix itself in the notches on either side. The anterior and posterior bars are each an inch and a half long, and the blades may be slipped out to the extremities, so as to widen the vulvar orifice to the extent of two and a half inches. The notched legs are on a plane half an inch below the level of the hinge, so as not to hinder manipulation through the speculum. The whole is made of metal, nickel-plated, and its construction will be more readily understood from looking at the woodcuts than from any further description in words.

"This speculum is used in the following manner:—The patient lying, either in the dorsal or left lateral position, the points of the blades are introduced with their edges antero-posteriorly; but when once fairly within the vulva, they are turned so that their flat surfaces come to occupy this position. The points are then pushed well up into the posterior fornix before they are separated, and when this is done, the short anterior blade slips over the cervix and takes its place anterior to it. Before this is done, however, it is better to slip the blades, usually only the posterior one, along the bars, so as to take advantage of the vulvar orifice of the vagina as far as is consistent with the avoidance of pain. Having expanded the blades as far as necessary by means of the notched legs, they are fixed in this position, and the cervix is open to sight and treatment. In withdrawing the instrument, all that is necessary is to touch the catch with the point of the finger, when the blades fall together, turn the edges antero-posteriorly, when the vulvar ends slide towards the hinge, and the whole slips out of the canal.

"Let us now compare this instrument with the ideal one with which we started. 1. This does show the cervix and upper part of the vagina well, the vulvar orifice being strained as far as it can be in the individual vagina, the points of the blades are independently opened till the most is made of the space in the upper reach of the canal, and, the blades being both comparatively short, the cervix drops well into view. All the vaginal walls are seen, except those parts covered before and behind by the blades; not so much, of course, being visible as with Sims' instrument, which only covers the posterior wall.

"2. This speculum does not distort the parts unless the

points are very fully expanded, when, by pulling on the cervical attachments of the vagina, the os is drawn open and the interior of the canal is exposed to view. When opened only so far as to allow the cervix to pass between the blades, a natural view is obtained.

"3. Only one speculum is needed for all kinds of vaginæ. In the case of a nullipara the blades are slipped either a little way along the bars or not at all, the points only being opened, while in a multipara, where the external orifice is large, the blades are carried to near the extremities of the bars before the points are caused to diverge, and thus the whole canal, both above and below, is put on the stretch. The saving of pain in the case of a woman with a narrow tender vagina is very great, and yet the utmost is made of what space there is.

"4. As the blades are always more widely open above than below, this instrument is perfectly self-retaining and leaves the operator's hands perfectly at his disposal.

"5. There is very free access to the cervix. By taking advantage of the arrangement for dilating to its utmost the entrance to the vagina, I have been in the habit of using, not only the sound, Playfair's probe, the uterine lancet, etc., but also Ellinger's dilator, and I have found it a considerable advantage to be able to watch its effect on the os externum. By its help one can hook up the cervix with a tenaculum and introduce a tent with extreme ease. As the points of the blades are flat and the one shorter than the other, it is very convenient for placing a tampon in the vagina, and with it the whole canal can be firmly packed from within outwards.

"6. My original idea was to have neither screws nor joints to harbour dirt or be difficult to keep clean. The only specula I know of which open independently at the upper and lower parts of the vagina are Arnold & Son's improvement on that of Mazarem, of Lisbon (*Cat. Obst. Instruments*. Lond. Obst. Society, 1879, p. 350), Goodell's "base-expanding" (*Lessons in Gynecology*, 1880, p. 27), and Mundé's modification of Sims' and Nott's speculum (*Minor Surgical Gynecology*, 1881, p. 84), and I submit that these are less simple than the one under consideration, they all having both joints and screws. In order to thoroughly clean it, the blades are simply slipped off the bars, this is done in a second or two, and each part washed every time it is used.

"7. Being of metal, it is not liable to be broken, and as I carry it with the blades unshipped and laid alongside the bars in a pocket of chamois leather, the whole measures $5 \times 3\frac{1}{2} \times 1$ inches, and thus takes up little room in an ordinary pocket.

"This instrument has certain disadvantages. Being of metal, it is a good conductor of heat and so requires warming in cold weather. It could not be used with the actual cautery for the same reason, and strong mineral acids would destroy its reflecting surface. To obviate these disadvantages, I am getting a pair of blades covered with vulcanite. In bleeding the cervix, one has to mop up the blood with absorbent wool, as it cannot be run into a vessel as with a tubular speculum.

"Experience in its use has shown that, with it, work can be carried on with great rapidity. There is no choosing of a speculum, the one suits all cases; the closed blades are easily passed into position, opened, fixed, and withdrawn, so that no time is lost. The opening of the blades can be managed so as to stop whenever discomfort begins to be experienced, as each notch on the legs corresponds to only an eighth of an inch of expansion at the points of the blades.

"I may add that the instrument is made and sold by Messrs. W. B. Hilliard & Sons, 65 Renfield Street, Glasgow."

Tannate of Cannabin.—This is a new hypnotic preparation, obtained from the *Cannabis Indica*. It is easily taken in the form of powder, mixed or not with syrup. It produces tranquil sleep, with no trace of poisonous symptoms or of constipation. It is a brownish-yellow powder, insoluble in water and ether, but soluble in alcohol; it has no smell, a bitter taste, and an odour somewhat like that of tannin.

M. Frommüller has administered it in a great many cases, both in public and in private practice, and usually with excellent results. The patients had been accustomed to the use of subcutaneous injections of morphia for insomnia, and suffered from phthisis pulmonalis, abdominal tumours, chronic bronchitis, acute pneumonia, &c. The dose was regulated according to the patient's general condition and the degree of the insomnia; it varied chiefly from 10 to 30 centigrammes, though as much as 1.50 grammes has been given. The author concludes his researches by stating that in this drug we have a hypnotic of the first value and absolutely harmless; it has no effect on the various secretions, and produces no unpleasant symptoms.—(*Paris Médical*). *Bull. Gén. de Thérap.* 15th April, 1883.

Medicated Gelatine in the Treatment of Skin Diseases.—Dr. Pick speaks highly of medicated gelatine in the local treatment of various skin diseases. It is a clean and convenient dressing, obviating the necessity of bandages or plaster to

retain the application. After a bath the patient applies the gelatine, melted in a water bath, with a brush, and after it is dry paints over it a thin coat of glycerine. The latter prevents cracking and chipping off of the dried gelatine, and also keeps it flexible, so that the joint movements are not interfered with. The following is the mode of preparing the medicated gelatine: dissolve fifty parts of gelatine in one hundred parts of distilled water in a water bath, then add the medicament in the desired proportion, stirring constantly. Then set the mixture aside, and when cool, wrap in oiled paper. The patient is instructed to melt a piece of this gelatine cake in a saucer set in hot water, and when fluid, to apply with a camel's-hair pencil to the diseased surface. When it is desired to make a fresh application, the patient takes a warm bath and the old dressing is washed away. (*Allgem. Wiener med. Zeitung*, Feb. 13, 1883.)—*The Practitioner*, July, 1883.

The Elastic Respirator in the Treatment of Dyspnœa in the Emphysematous.—Prof. Bazile Férís, considering the dyspnœa associated with emphysema the most painful and troublesome symptom of the disease, has devised an apparatus which he terms the “elastic respirator” to render breathing deeper and easier. The chief cause of the dyspnœa is loss of elasticity in the alveolar walls, the chest being fixed in the inspiratory position; any therapeutic resource therefore which will facilitate expiration, or restore to the lung its lost elasticity, will abolish the dyspnœa. The apparatus designed by the author is extremely simple and light. It resembles exactly a double hernia truss: from a pad situated between the shoulders, the two limbs of the truss pass round under the arm-pits to the terminal pads in front, which are rather larger and thinner than those of a hernia truss. Light straps passing over the shoulders keep the pads in position. The parts at which these pads should be made to exercise pressure are the least resistant parts of the thoracic wall, usually the upper and anterior part of the chest, over the cartilages and the ends of the ribs. The first effect of the pressure so applied is to drive out the air from the chest, that is, expiration is effected; inspiration then follows without any effort, as the inspiratory muscles are not enfeebled, but have rather increased in volume; then again artificial expiration, and so on. The increased movement by the chest wall so obtained was clearly shown in some tracings taken by M. Constantine Paul.

The actual practical results obtained by M. Férís, in the treatment of thirteen cases of emphysema, were very striking.

The relief to the dyspnoea was as a rule instantaneous; patients could walk, run up and down stairs, sometimes even run with little fatigue. One patient was so much improved that he left hospital without his respirator; he had not gone 300 yards however till he came to a stand-still, and had to return to the wards leaning on the arm of an attendant; then, having put on his respirator again, he went out in comfort, and did not return for seven hours. Four very striking and successful cases are recorded in detail.

The author's account of the benefits derived from using his apparatus is still further confirmed by experiments with the spirometer: it was found that breathing easily with the respirator in position, the volume of air respired was nearly double that respired without the apparatus. Another point worthy of notice is that not only does this respirator deepen and facilitate respiration, but it diminishes the rapidity of the respiratory movements. In the very aged, in whom the chest is rigid, this apparatus is not of so much use, though even here it favours expiration by lowering the ribs. When the emphysema is complicated by intense bronchitis, the dyspnoea does not disappear completely.—*Bull. Gén. de Thérap.*, Aug 15, 1883.

Removal of Warts.—Warts may be removed by cauterisation, as recommended by Dr. Cellier in the *Journal de Méd. et de Chir. Pratiques* (*Medical Record*). An ordinary pin is thrust through the base of the wart, care being taken not to wound the healthy tissue beneath. Then the skin being protected, the head of the pin is heated in the flame of a candle. It is said that the wart becomes white and fissured in a few minutes, and comes away on the point of the pin. Dr. Cellier also says that it is only necessary to remove one wart on the hand, that though there may be a dozen, all the others will disappear without treatment.

Castor Oil and Glycerine.—A mixture which is of an agreeable flavour, and in which the nauseous smell of the oil is efficiently disguised, can be made thus:—

R _x . Ol. ricini,	3 j.
Glycerini,	3 j.
Tr. aurantii,	℥. xx.
Tr. senegæ,	℥. v.
Aquæ cinnam,	ad 3 ss.

This forms a beautiful emulsion, is easily taken, even by children, and if administered at bedtime will produce a gentle motion the following morning.—*N. Y. Med. Rec.*

Fracture of the Clavicle in its Outer Third.—A lecture on this subject was delivered by Professor Lewis A. Sayre, at Bellevue Medical College, and reported in the *Med. and Surg. Rep.*, of Philadelphia. He said:—

Gentlemen,—I here present to you a case which is of considerable interest, although it hardly comes under the Chair of Orthopædic Surgery, unless considered as a prevention of deformity.

This young man informs me that a few days ago he fell from a waggon, striking upon his shoulder, which has resulted in a fracture at the outer third of the clavicle. You note how my finger drops into the depression at this point, and how extensive is the discoloration of the tissues. Now, in these cases the shoulder drops downward, forward, and inward, the pectoralis major drawing it downward and forward, while the sterno-mastoid, drawing the sternal end of the clavicle upwards, results in the deformity you see here. I suppose there have been more instruments devised for treating fracture of this little bone than all the instruments for other fractures put together. I cannot take time to enumerate them, but two or three years ago Dr. Frank Hamilton occupied three consecutive lectures in applying these various methods (before the class) upon patients admitted into the hospital for fracture of the clavicle, and then concluded his exhibition by informing the class that all these methods were of no avail, and he would not advise their use, but stated that the patient should be placed in bed, with a pillow between the shoulders so as to bring them well back, the patient to remain perfectly quiet; this treatment he considered all that was necessary, and termed it postural treatment.

If a man can lie absolutely still for six weeks, union might be effected in this manner; but the deltoid muscles and the muscles of the shoulders would probably move and prevent union of the bone.

My plan of treatment is simply this: I take two strips of adhesive plaster $2\frac{1}{2}$ inches wide; then, passing one strip of adhesive plaster round the arm at the junction of the lower and middle third, I make a loop, leaving an open space at the posterior part of the arm, as you see; this prevents strangulation. Then drawing the arm back, I bring the pectoralis major upon the stretch, but the acromial end of the clavicle still rides under the sternal fragment; I now secure the arm back by passing the strip of adhesive plaster around the body, bringing it under the arm of the opposite side, across the thorax, and fasten it to itself on the back.

Care must be taken not to draw the arm too far back, but just sufficient to put the pectoralis major upon the stretch. I now take this other strip of adhesive plaster, and make a slight longitudinal cut in the centre to admit the point of the elbow; you now flex the arm at an acute angle over the chest, drawing it upward, forward, and inward, and in this manner you reduce your fracture, as you see that I have done in this case. Bringing both fragments of the bone into a perfect line, you now secure the arm in this position by passing the strip of adhesive plaster over the elbow across the back diagonally to the opposite shoulder, then bring the anterior end of the strip up along the hand and arm over the chest, and fasten it to itself at the shoulder.

I desire you to note this carefully, as it is the most simple method of treating the fracture of the clavicle that I have ever seen, and is the only plan of treatment which will yield a perfect result without deformity.

One advantage of this plan of treatment is this; it is absolutely impossible to dress a fracture of the clavicle in a child with any complex bandage satisfactorily, whereas in this your bandage is perfectly secure, and there is no possibility of its becoming displaced. Never use an axillary pad, as the pressure by this means often stops the circulation of the arm, and the pain following this occurrence is something terrible.

It is impossible now to displace those fragments as I have dressed this man's injury, and he can go to work with his other hand. If you were to dress that fracture in such a manner as to render that man unable to use his other hand to earn his living, you ought to be compelled to pay for the loss of time which would follow such treatment. I have treated numbers of fractures in this manner with the most perfect results, and I defy any one to detect the point of fracture when cured; I say that a fractured clavicle can be cured without deformity. Excuse me for my warmth upon this subject, but I have been censured so recently by our own surgeons upon this point that I feel compelled to reiterate my statement somewhat forcibly, and will demonstrate the fact before you in the case now before us, as I intend that you shall see this man when he is cured.

[The following week the man appeared before the class; the bandage was found to be in the same condition as when applied, the fracture was immovable, and the line of the clavicle perfect; two weeks later the bandage was removed, perfect union having been secured; nor was there any deformity perceptible, the fragments having united in a perfect line.]—*Lond. Med. Record*, July, 1883.

Oil of Wintergreen in the Treatment of Acute Rheumatism.—Dr. F. P. Kinnicutt (*Medical Record*, Nov. 4, 1882), concludes a report as follows:

1. That in the oil of wintergreen (acid methyl salicylate) we possess a most efficient salicylate in the treatment of acute rheumatism.

2. That in its efficiency in controlling the pyrexia, the joint-pains, and the disease it *at least* ranks with any of the salicyl compounds.

3. That the best method of its administration is in frequently repeated doses, continued in diminished doses throughout convalescence.

4. That its use possesses the advantages of being unattended with the occasional toxic effects, the frequent gastric disturbance produced by the acid or its sodium salt, even when prepared from the oil of wintergreen; that its agreeable taste, and finally its comparative cheapness, are further recommendations in favour of its employment.—*The Detroit Lancet*, July, 1883.

Ergot to Prevent the Toxic Effects of the Salicylates.
—Schilling, in a recent memoir (*Ärtzl. Intelligenzblatt*, 1883), states that he has observed, after the administration of rather strong doses of the salicylates (ʒiiss to ʒiiss. per diem, ʒij to ʒiij. in all), lasting troubles of audition, the tympanum being thickened. Another patient, who took on two consecutive days the massive dose of thirty grains of sulphate of quinine, became subject to ringing in the ears with marked deafness. It is not at all rare to observe these troubles of audition after the administration of large doses of the salicylates or of sulphate of quinine; they are attributed to hyperæmia, brought about by the vaso-paralytic action of the remedies. To obviate this vascular paralysis, Mr. Schilling has the idea of administering ergot in connection with these drugs:—

R.	Ergotine,	gr. xv. vel.
	Ext. ergot. liq. in proportionate dose.	
	Sodæ salicylat.,	ʒ iiss.
	Aquæ,	ʒ vj.
M.	S. Tablespoonful every hour. .	

Out of eighty-seven patients who took the salicylate in this form, three-fourths did not suffer at all from ringing in the ears. In the same way nine others took sulphate of quinine, one gram to one and a half of ergot, without any troubles of audition. It would seem also that this association of quinine and ergot prevents the development of the amblyopia, which

sometimes supervenes after the administration of large doses of quinine.—*The Medical and Surgical Reporter*, 14th July, 1883.

Salicylate of Soda in Phlegmasia Alba Dolens.—Dr. M. Vigar states that he has attended four cases of this affection. In the first he used no internal remedies, limiting himself to the local measures advised by various authors, keeping the patient in bed two months, and even then a certain degree of œdema remained, with a few nodosities on the course of the inflamed veins; these disappeared very slowly, and at the end of five months slight traces of them were still discoverable.

In his other three cases he used the salicylate of soda, with very good results. He gave it to the extent of one drachm per day, and after the first day found that the temperature fell very decidedly, the pulse became slower, and the œdema diminished to a very notable extent; the disease passed through its phases of inflammation and repair in so short a time that not one of the three patients was confined to bed longer than the third week. No signs of œdema or of nodosities on the limb remained.—(*El Siglo Medica*. 1st April, 1883.) *Bull. Gén. de Thérap.* 15th June, 1883.

Antidotum Arsenici.—A very important new preparation (in the new American Pharmacopœia), whose name will probably convey to most of our readers no idea of its use or value, is *Ferri Oxidum Hydratum cum Magnesia*. Much better would it have been for the committee to have adopted the name of the German Pharmacopœia, instead of this ponderous appellation. *Antidotum Arsenici* conveys a very definite idea, and is brief. The new antidote, without doubt, is superior to the old hydrated sesquioxide of iron; indeed it is merely the old friend in a new and improved garb. Magnesia added to a solution of a sesquisalt of iron precipitates the sesquioxide. The excess of magnesia is not irritant, like ammonia or potash, and has the further advantage of adding to the efficiency of the antidote. In a case of arsenical poisoning, agitate magnesia in excess with the tincture of chloride of iron, or with any of the sesqui-iron solutions, pour off the liquid, and administer the bulky precipitate freely. (*Philad. Med. Times*, Jan. 27, 1883.)—*The Practitioner*, July, 1883.

Jequiritic Ophthalmia.—Wecker (*Ann. d' Oc.*, Nov.-Dec., 1882) has employed jequirity in a large number of cases of

obstinate granular conjunctivitis, and draws the following conclusions:—1. Lotions of infusion of jequirity seeds produce a purulent ophthalmia of a croupous nature, the intensity of which can be regulated by the number of lotions which are employed, and by the strength of the infusion employed. 2. The cornea runs no risk during the evolution of the jequiritic ophthalmia. In only a single case, in which the ophthalmia was pushed to a veritable diphtheritic aspect, was there produced a circumscribed and transient desquamation of the cornea. 3. The jequiritic ophthalmia rapidly cures the granulations, and, even if reproduced several times, it acts with much less danger and discomfort to the patient than inoculation, for it always disappears, without any treatment, by confining the patient for from eight to twelve days in a darkened room.—*New York Medical Journal*.

Gastrostomy, Œsophagostomy, and Internal Œsophagotomy in the Treatment of Stricture of the Œsophagus.—Operations on the internal organs of the body have become much more common than they were formerly, and in recent years, the stomach has been very frequently operated on with the view of counteracting the effects of œsophageal obstruction.

Dr. Morell Mackenzie, in the *American Journal of the Medical Sciences* for April 1883, analyses the cases of this character which have been already published, and gives an account of two new cases.

He finds that gastrostomy has been performed 81 times, and that death occurred from shock in 27 or in 24·6 per cent.

The advantages of gastrostomy are—1. That it can be carried out with comparative ease; 2. That there is very little risk in the steps of the operation itself, especially if done in two acts separated by a proper interval of time; 3. That there is almost entire certainty of being able to effect the object aimed at, which is the establishment of an alimentary fistula altogether beyond the seat of stricture; and 4th, that the fistula is hidden from sight. The only disadvantage is that gastrostomy still yields a high percentage of deaths.

Twenty-six cases of œsophagostomy are analysed; of these, 16 died within a fortnight, and 7 died from shock.

The advantages claimed for œsophagostomy are:—

1. That it is attended with comparatively little shock.
2. That it facilitates subsequent dilatation of the stricture; while the disadvantages are that the operation is a very difficult one, and attended with considerable danger from its

proximity to so many important structures, and there is great uncertainty in any given case whether the opening in the œsophagus can be made below the stricture; and finally, a discharging fistula in the neck is a conspicuous disfigurement.

Seventeen cases of *internal œsophagotomy* are analysed, and the following advantages claimed for this operation:—

1st. That it is attended with an inconsiderable amount of shock.

2d. That if the stricture can be thoroughly divided, gradual dilatation can be carried out, and a cure thereby effected.

3d. That the procedure involves no external wound. The disadvantages of internal œsophagotomy are:—

1st. That it can only be safely performed in cases where it is still possible to pass a bougie.

2d. It is often difficult to pass all the strictures.

3d. In many cases, the walls of the œsophagus are so thickened that limited longitudinal incision does not relieve the obstruction.

4th. The actual danger in the operation is far from inconsiderable.

Cataleptic State of the Muscles.—At the Société de Biologie, M. Brown-Séquard stated that a condition resembling catalepsy may be produced in the muscles, and in them only. It cannot well be caused by the nervous system, since this phenomenon may be produced more than two hours after death, and since the destruction of the spinal cord does not modify, but rather increases it. This cataleptic state is so clear as to be beyond doubt. Any part will keep the position in which it is placed, and is always rigid; this is not cadaveric rigidity since it does not pass off. It is possible for this to occur in man.

It is known that convulsive movements have been observed in death from cholera and yellow fever. M. B.-S. cited an example coming under his own notice. A man, several hours after death from cholera, brought his two hands together, lifting his arms into the air, and continued to repeat this for some time in the clearest way possible. An English author has recorded the same facts following a death from yellow fever. Lastly, convulsive movements are sometimes observed in a recently amputated limb.

M. B.-S. has no doubt that these phenomena have their seat in the periphery and not in the nervous centres. In summing up these facts we arrive at the conclusion that a peculiar state of the muscles, analogous to catalepsy, may occur, and that the contractile tissues may have certain actions more or less similar

to those produced by the influence of the nervous system. The contractile tissues are therefore more closely allied to the nervous system than is generally supposed.—*Gaz. des Hôpitaux*. 20th March, 1883, p. 261.—J. L. S.

Explosive Mixtures.—From the *Cinn. Lan. and Clinic*, 17th March, 1883, we note as follows:—

1. Hypophosphite of lime, chlorate of potash, and sulphate of iron, mixed in equal proportions, are explosive.

2. A solution of one part of chromic acid and two of glycerine.

3. Chlorate of potash and dental powders containing carbon explode in the mouth.

4. A pilular mass containing permanganate of potash mixed with vegetable extracts and iron, easily inflames.

5. Chlorate of potash or the permanganate or other explosive substances must not be triturated with glycerine.—*Rev. Cienc. Méd.*—*Rev. Méd. Quirurgia*.

Chlorate of potash and tannin explode if triturated; as do chlorate of potash and sugar. Iodine or an iodide and a nitrate may explode.—*Virginia Med. Monthly*.

The *Pharmacist*, March, 1883, says:—When picric acid is introduced into a vessel containing ozone, a violent detonation instantaneously takes place, a new proof of the danger attending experiments with nitrogenous compounds containing nitrogen only loosely bound.—*The Medical and Surgical Reporter*, 14th July, 1883.

Five New Medicines.—In the *Deutsche Med. Wochenschr.*, 21st and 28th February, 1883, Dr. A. Hiller details his experience of five new medicines employed in the medical clinic of Herr Leyden in Berlin. These are—1. **Tannate of Soda** (natron tannicum); 2. **Extract of Calabar Bean**; 3. **Tannate of Cannabin** (cannabinum tannicum); 4. **Acetal**; and 5. **Convallaria Majalis**.

1. *Tannate of soda* is prepared by mixing a solution of tannic acid, 5 in 170, with a concentrated solution of bicarbonate of soda to perfect saturation. The drug is better borne by the stomach than tannic acid itself, and its harsh astringent taste is easily disguised by glycerine; but Dr. Hiller has not found it so beneficial in the treatment of albuminuria as was expected from the experiments of Ribbert on animals. Its action is slight when any organic defect in the kidney is present, and it seems to be most useful in transitory attacks of albuminuria. The solution proposed

by Lewin, and quoted above, has only a weak astringent action on the tongue and mucous membrane, and does not precipitate albumen in solution, from which Dr. Hiller concludes that its styptic effect will not be great.

2. *Extract of Calabar bean* has been recommended by Subbotin (*Arch. für Klin. Med.*) and others as a powerful tonic for the muscular coat of the intestines. It has been employed in Leyden's clinic in the formula of 1 decigramme ($1\frac{1}{2}$ grains) of the extract to 30 grammes (1 ounce) of glycerine, of which ten drops were given three or four times a day, and it has been found to be an energetic tonic in cases of atony of the bowels. Its effects, however, are not lasting, but pass off after the drug has been discontinued for two or three days; and in one case, after it had been employed for two days, it caused most alarming attacks of palpitation, with irregularity of the pulse, precordial anxiety, and a feeling of impending dissolution. Dr. Hiller recommends that it should be given as an intestinal tonic with great caution for only two, or at the most three, consecutive days, and with careful observation of the pupil, whose contraction gives the first sign of the commencement of tonic action. He suggests, as the result of his experiments with the drug on animals, where he found that it restricted the peristaltic action of the intestines, that it might be employed with advantage in Asiatic cholera.

3. *Tannate of cannabin*, recommended by Fronmüller as a safe hypnotic, free from unsatisfactory after effects, has been found by Dr. Hiller to be most useful in cases of slight sleeplessness, when unaccompanied by pain or psychological irritation. An evening dose of half a gramme ($7\frac{1}{2}$ grains) was sufficient to produce a night's sleep, and no disturbance of digestion, circulation, or respiration has been found to result from its use. It was prescribed in powder in combination with sugar.

4. *Acetal*, or, more properly, diethylacetal = $\text{CH}_3\text{CH}(\text{C}_2\text{H}_5\text{O})_2$, was highly spoken of by Von Mering (*Deutsche Med. Wochens.*, 1882, No. 43) as a specially safe anæsthetic, acting first upon the cerebrum, then on the spinal cord, and lastly on the medulla, so that the effect on the heart would not begin until both consciousness and reflex action were abolished. As a hypnotic, Dr. Hiller has found it impracticable on account of its burning taste, and the enormous doses in which it must be taken in order to induce sleep, it being six times weaker than chloral. No unfavourable effects on pulse or respiration were found to follow its employment, but, on

the other hand, the patients complained in the morning of stupefaction and weight in the head, and in one case, of faintness and nausea.

5. *Convallaria majalis*, the lily of the valley, which has been used as a diuretic in Russia and France, has completely failed in the hands of Dr. Hiller in all the preparations which he has employed. He thinks his failure may be owing to some therapeutic difference in the plants belonging to different countries, and he proposes to make experiments with the Russian and French varieties, if he fail with the active principles of the German plants.

In a discussion on the paper in the Verein für innere Medicin, on 5th February, Herr Lewin supported the claims of tannate of soda against Herr Hiller's declaration that it was weaker than tannic acid. He showed that, as tannic acid is changed in the body into tannate of soda or potash, it must have the same result to give the salt at first. He stated, in answer to Herr Steinauer, that tannin did lessen the albuminuria in Bright's disease, and that the soda salt could be borne for a longer time than the acid itself.

In the discussion on the extract of Calabar bean, it was brought out that it acts only on the unstripped muscular fibres, and has no action on the œsophagus or stomach, but chiefly on the small intestine.

The tannate of cannabin was considered not to be so useful as was at first believed, and large doses were by all considered necessary to produce sleep, which, when produced, was not always very satisfactory.

Acetal was condemned as not suitable for use as a hypnotic, and Herr Lublinsky said he had only once succeeded in obtaining a good result from the use of *convallaria majalis*, while Professor Jacobson had had no success with a specimen sent direct from Paris.—*Lond. Med. Record*. 15th June, 1883.

Chloral Hydrate as a Purgative.—Dr. Bonatti (*Italia Medica*, March; and *Gazz. Med. Ital. Prov. Venete*, 7th April) says that in the treatment of the insane one often meets with cases of obstinate constipation, in which a safe, prompt, and easily administered aperient is required. In these cases the stronger drastics, such as jalap and croton oil, often are inefficient and dangerous. Bonatti finds that chloral in infusion of senna answers admirably. He gives it in doses of 1 gramme to 2 or even 3 in 100 grammes of infusion with 30 grammes of syrup. Its action is easy, safe, and powerfully drastic.—*London Medical Record*. 15th June, 1883.

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THE
GLASGOW MEDICAL JOURNAL.

No. IV. OCTOBER, 1883.

ORIGINAL ARTICLES.

ON THE IMMEDIATE SUTURE OF DIVIDED NERVES.

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THE suture of divided nerves cannot be regarded as a novel surgical procedure, when it is remembered that it was spoken of by Guy de Chauliac and Lanfranc, and in more recent times was practised by Fontana and Dupuytren; but it is only within the last twenty years that the effects resulting from the division of nerves have been carefully studied, and that an attempt has been made to obviate these disastrous conditions by ensuring union of the cut ends at the earliest possible period. It is undeniable that in many cases of incised wound regeneration of the nerves takes place in a comparatively short period, and without any appreciable loss of sensory or motor power; indeed, this rapid union has often materially lessened the benefit of neurotomy in the treatment of neuralgia, the period of absence of pain being disappointingly short. But it must be remembered that in these instances the nerve is in highly favourable conditions for union to take place; the wound is a perfectly clean, incised wound, the cut ends are in perfect apposition, and the nerve protoplasm is not merely healthy, but is in a condition of excitation favourable to rapid reproduction. These conditions are seldom to be met with where the nerves are divided by purely traumatic causes, and when suppuration follows the nerve ends may become so separated and changed that union becomes out of the question; there then follows a train of characteristic symptoms leading up to

more or less complete abolition of the function of the parts supplied by the nerves injured. Of these symptoms the first is *pain*, often radiating along the course of the branches of the injured nerve; when the nerve is completely cut across this is evidently due to inflammation of the cut end, the pain being referred to the usual endings of the nerve filaments involved in the inflammatory process. It appears to us, however, that pain is most frequently present and is most intense when the nerve is only contused, or is incompletely divided. Case No. 4 (detailed below), is an example in point, for the pain was more intense than in any other case under our care, and was most marked on the back of the hand; the posterior branch of the ulnar nerve was found to be only partly severed, and was still connected with the main trunk. So severe and persistent was the pain that we meditated the complete division of the nerve for the relief of this symptom, but a slight diminution of its intensity led us to wait. When it results in this way from incomplete division, the pain is of a burning character, and there is swelling and redness of the skin, with extreme sensitiveness to the touch; these features we have not noted in any of the cases where we had reason to know that the nerve was completely severed. Anæsthesia occurs immediately where the division is complete, and at a later period in partial division. It does not always correspond in its area to the anatomical distribution of any nerve or branch of a nerve; but the apparent discrepancies herein observed may be reconciled by taking into account the communications so frequently occurring between different nerves, or by some fibres of the nerve remaining uninjured. Nicaise asserts that in most cases the loss of sensation of heat or cold is greater than the loss of the sense of touch (thermo-anæsthesia); but in neither of the cases here detailed was this peculiarity noticeable. There is always more or less motor-paralysis; but here again it requires some careful observation to make sure of its extent, or even of its existence, for, in the hand for instance, the paralysis of the muscles of the palm is largely masked by the power of the long flexors remaining apparently unaffected, although the ulnar nerve may have been completely divided. In like manner the after paralysis is shown rather by weakened power (paresis), than by actual paralysis, and the patient often is able to perform all the usual movements, but in a weakened and imperfect way; this is explained either by the action of associated muscles supplied by other nerves, or by communicating filaments joining the injured nerve beyond the point of section. Rarely there are tonic or even clonic

contractions of the muscles supplied by the affected nerve, but this, again, is a result of contusion and subsequent inflammation, and is not present where the nerve has been divided by a sharp weapon; the cases in which this symptom has been noted have generally been those of bullet wound, in which the nerve has been not merely divided, but seriously bruised and shattered. But, of all the symptoms, the most interesting are those dependent on the changed conditions of the nutrition of the limb, or *trophic changes*. The most characteristic of these is the appearance of patches of redness in the skin of the affected area, having a glossy aspect, and closely resembling chilblains. When the nerves of the forearm are injured the fingers show these patches, and then become swollen and tapering, the patches are generally hairless and of a bright or deep red colour; here and there we may observe blisters either of small size and disposed in groups, or in large bullæ, extending over most of the congested area. An excellent illustration, showing these features, is given in the *History of the War of the Rebellion* (part II, vol. II, plate LI), and another, though scarcely so characteristic, appears in the *International Encyclopædia of Surgery* (Vol. III, plate XVII). Other trophic changes have been described by different authors, such as the occurrence of traumatic herpes (Verneuil), secondary ulcerations due to the herpetic vesicles or bullæ, turtle-shell condition of the nails (Weir Mitchell), and discolouration and scaling of the epidermis. Mitchell has also shown that there is a change in the secretion of sweat, the secretion being abolished after complete section, but increased "in incomplete section with irritation." There are other and deeper changes resulting from section of the nerves, and affecting the muscle fibre, the bone, the joints, and the connective tissue; there are also certain neuro-paralytic inflammations, a typical example of which is seen in the cornea after injury to the fifth nerve, and there are changes in the nerve centre, either as the result of direct irritation or of ascending neuritis. Space will not permit of our entering into a discussion of these, but we think the foregoing sketch is sufficient to show the serious consequences which may ensue if a nerve is injured, and to emphasize the necessity for taking means to secure union at as early a date as possible. To quote from Mr. H. W. Page (*Brit. Med. Jour.*, vol. I, 1881, page 719), "it should be the routine practice of the surgeon not only to stay hæmorrhage by securing the ends of divided vessels, but also to search for, and carefully draw together, the ends of divided nerves."

Before discussing the details of the operation, or the results to be obtained, we will give the particulars of cases occurring under our own observation, premising only that in two of them, the injuries to other structures than nerves were so serious that they cannot be regarded as satisfactorily testing the advantages of nerve suture:—

1. J. S., aged 21, admitted into Ward XVI, 13th May, 1881, with a wound of left foot, between the internal malleolus and the os calcis, about $\frac{3}{4}$ in. long, and exposing the tibial vessels and nerves; it was produced by means of an adze. The posterior tibial artery was found to be divided; one or two small branches of the artery, the venæ comites and the posterior tibial nerve were also found to be cut through, the latter at the point of its division into the plantar nerve. Bleeding had been going on for an hour before admission, and patient was pale and his pulse weak. Sensation was found to be wanting in the middle of the plantar surface of the foot. Mr. Clark extended the incision, tied the tibial artery and some of its branches, as well as the veins. He also brought the ends of the cut nerve together by means of chromic gut sutures, passed through the thickness of the nerve twice, so as to form a double suture. A horsehair drain was inserted and the wound dressed antiseptically. *15th May.*—Dressed. Sensation still absent from sole of foot; over the line of the proximal part of the nerve there was acute pain on pressure. *20th May.*—Dressed. Sensation still absent from toes, but present, though imperfect in sole of foot. *3rd June.*—Spray dressing stopped, and boracic lint substituted. Wound healed. Sensation much improved; feels when the toes are touched, but fails to localise the sensation in the right toe. *10th June.*—Sensation quite normal. Dismissed 11th June.

2. T. B., aged 25, admitted into Ward XVI, 1st August, 1881, with a cut on the wrist. The previous evening patient drove his hand through a window and inflicted an incised wound on the front of the left wrist, extending from the middle of the carpal fold upwards and inwards to a point two inches above styloid process of ulna, then curving round the arm to the middle of the back of forearm. The ulnar artery, veins, and nerve were divided, and also a few fibres of the flexor carpi ulnaris. Sensation was lost in both sides of front of little finger and ulnar side of front of ring finger, and over ulnar third of palm of hand. Mr. Limont, the house surgeon, ligatured the artery and veins, and brought together the cut ends of the nerve by chromic acid catgut. The wound was carefully cleaned and stitched up, and antiseptic dressings

applied. *27th August.*—Wound almost entirely healed, only a small granulating area being now left. Sensation is returning in fingers. Dressed with boracic lint. *4th September.*—Patient's sensation appears to have quite returned, but he says it is not so "sharp" in the little and ring fingers. *16th September.*—Sensation perfectly restored.

3. W. Y., aged 19, admitted into Ward XVI, 31st August, 1881, suffering from injuries in front of left wrist inflicted by a circular saw. The ulnar and radial arteries, median and ulnar nerves, and all the superficial layers of tendons were divided—the latter, with some of their muscular parts, being much lacerated. A piece of bone about the size of an almond was separated from front of ulna, and there was also a crack running upwards in that bone. The attachment of the pronator quadratus was torn from the ulna. The House Surgeon (Mr. Limont), ligatured the arteries and veins, and made an attempt to identify and stitch the tendons, but this was found to be impossible, owing to several of the distal tendons having retracted into the palm. *1st September.*—Dr. Foulis sutured the nerves with chromic acid catgut; he also tried to suture the tendons but only managed one or two, the others being indistinguishable and hidden in the palm. The wound was drawn together at the corners and dressed with the hand slightly flexed. Only slight sensation on back of radial side of hand. *5th September.*—Dressed every day up to this time; the discharge profuse, and large quantity of sloughy tissue separating. *14th September.*—Large abscess opened at back of hand. Patient says he has more sensation to touch on all the back of hand. Dismissed on 15th October, but attended the ward for a long time as an out patient, during which time no record of his case was kept. The sensation had not completely returned when he was last seen, being most notably deficient in the region of distribution of the radial nerve; the sensation of the palm, although fairly good, was not up to the normal state.

4. M. B., aged 35, admitted into Ward XVIII, 15th October, 1883, with a cut on the wrist which patient (who was, however, drunk), said she had got by driving her hand through a window. The wound was an incised one, and ran transversely across the ulnar side of the forearm, about two inches above the styloid process. The palmaris longus tendon, one of the tendons of the flexor sublimis, the tendon and part of the fleshy mass of the flexor carpi ulnaris were divided, as also were the ulnar artery and nerve. The nerve was divided at the point of origin of the dorsal branch, this branch being

nearly cut across, but a few fibres still connecting it with the proximal part of the main trunk; the palmar branch was entirely severed. The vessels were ligatured, the two ends of the tendons approximated and stitched with thick catgut, and the two branches of the nerve pulled up and stitched to the trunk by fine catgut stitches; a drainage tube was inserted, and the wound brought together by sutures. These operations were conducted with due antiseptic precautions. No very clear account could be got of the state of sensation, but it appeared to be almost totally lost on back and front of little finger and half of ring finger. *10th October.*—Complains of pain, not only in the wound, but up the arm as far as the axilla. *17th October.*—Pain confined to the wound, which looks healthy; has very little movement in little finger, but whether this is in consequence of the pain or of loss of nerve power to the muscles cannot be made out. Sensation is wanting all over the little finger and on back of ulnar side of ring finger, being present on the front of the same side of the ring finger; it is absent on ulnar side of hand, both back and front. *21st October.*—Wound septic; catgut stitches have given way, and wound looks rather sloughy; nerve exposed. *22nd October.*—Acute pain up ulnar side of arm and back of ulnar side of hand and back of little finger. After this date the wound healed by granulation, and patient was dismissed on 25th October, at which time the sensation had not returned to any appreciable extent. On 5th November, when she was last seen, she thought the sensation better, but on applying tests it was found she could not name the part touched.

5. J. M., aged 42, admitted 3rd April, 1882, with a diffuse aneurism of the ulnar artery. It was sent in as a case of aneurism by the doctor who had watched it from the beginning, and he gave a clear history of pulsation; but at the date of admission it was not pulsatile, nor was it materially affected by pressure on the artery proximally. The swelling was soft and semi-fluctuant, and there was considerable œdema above and below the elbow joint. *7th April.*—An incision was made down the front of the inner side of the arm, and the tumour opened into; it was found to consist of blood clot, the deeper layers of which were partly decolourised and laminated, limited by the intermuscular fascia, but with no distinct sac. The clots were cleared out and the ulnar artery ligatured above and below the opening into the aneurism. It was then found that the ulnar nerve had been so pushed forwards and spread out over the sac that it had been cut in the incision; nor was this to be wondered at, for it was difficult to identify it even with close

examination, and it was only by tracing it a little upwards and downwards that we were able to satisfy ourselves as to its being the nerve. It was sutured with fine chromic acid gut; decalcified bone drains were introduced, and the wound sutured. The wound did well, excepting that an abscess formed at the upper part, after it had healed, and caused some trouble. Healing took place chiefly by granulation. Patient was dismissed on 8th May, at which date the ulnar nerve had completely recovered its sensory and motor power.

It will be seen that in all cases the nerves were sutured by means of chromic acid catgut, and this we believe to be the safest and most satisfactory suture that can be obtained; it is the least irritating, is as reliable as silk, and can be cut short, and thus will not interfere with the early union of the external wound. It is curious to note that Dr. Nicaise, in his admirable papers on "Injuries and Diseases of the Nerves" in the *International Cyclopaedia of Surgery* (a paper to which we are indebted for some of the foregoing facts as to the results of nerve injury), advises the use of the catgut ligature and the adoption of Lister dressings, but at the same time recommends that the ends of the ligature should be brought out of the corner of the wound. We gather from this that Nicaise has had little or no experience of antiseptic ligatures, and certainly has not learned the advantages they possess. In all the cases the ligature transfixed the nerve, and did not merely connect the cut edges of the sheath; indeed, in small nerves it is impossible to get accurate approximation without including in the ligature the whole substance of the nerve. The nerve protoplasm is not seriously interfered with by the passage through it of a fine needle, or the presence of a substance so little irritating as antiseptic catgut. It will be noted that on this point we dissent from the view taken by other writers on the subject; but this is due to the fact that they have not employed the chromicized catgut ligature, and have in most cases had to wait for the separation of the ligature by an ulcerative process, which could not but be prejudicial to the integrity of the nerve structure.

The result was necessarily best where suppuration did not take place, and it may be doubted if in Case 4 the ligature was effective in keeping the cut ends of the nerve in apposition during the time the suppuration was going on; still, considering how serious and complicated the injuries were, no very good result could be anticipated; and certainly, in Case 3, the sensation and motion were remarkably good considering the nature of the injury, and what loss of motor power there was,

resulted rather from adhesion of tendons than from deficient motor nerve supply. Antiseptic treatment, in so far as it increases the probability of early union and diminishes the risks of suppuration, materially aids in obtaining a favourable result; and so satisfied are we of the certainty of early union of the nerve under these conditions, that after the experience of Case 5 we should not hesitate to cut a nerve in the course of an operation if it was found to be in the way, being sure that by careful suture later we could obtain satisfactory union. The section of a nerve is, however, generally followed by some degeneration of its structure; indeed it is doubted by most observers if immediate union without degeneration ever takes place. Certainly in all the cases under our notice an interval of some days (from 7 to 10), elapsed before the return of sensation was observed. It is therefore necessary to guard against any premature conclusion as to the result of nerve suture in any instance, especially as it is found that after the nerve continuity is restored it takes a little time before the current of nerve force passes freely, or the muscles respond readily to its stimulus.

The operation has, in all our cases, been free from complications, and we believe it to be perfectly harmless. What pain or disturbance of function was present was clearly traceable to the original injury and not to the suture of the nerve. We mention this because surgeons have in the past been chary of interfering with nerves in their continuity for fear of consequences. No doubt this feeling has been in some measure dissipated by the somewhat extensive experience now recorded. of the slight disturbance of nerve function produced by even very forcible stretching; but it is yet in some measure justified by the fact that experimental suture of nerves in rabbits has been followed by "intense neuritis, with deep suppuration and even purulent infection." Nicaise well remarks that in these animals suppuration takes place with very little provocation, so that the evidence derived from experiments on them is not of great value in this respect; but, it must also be remembered, that in the cases where a nerve has been wounded we are producing no new wound in performing primary suture, and are in scarcely any appreciable degree adding to the gravity of the traumatism.

Where the cut ends of the nerve have been separated by a considerable interval, either by retraction or loss of substance, the parts above and below may, without injury, be stretched to the extent of an inch or more. Where the loss of substance is more considerable, nerve transplantation might be tried, as

it has been successfully performed on chickens. As far as we are aware, however, it has never been attempted in the human subject; but we believe it is quite practicable, and might be made use of in not a few cases now regarded as hopeless.

By far the majority of cases of nerve suture reported are examples of secondary suture, and are consequently much less generally successful than primary cases, for we have in the former not only the original injury to the nerve, but also the secondary degeneration of the muscles and other tissues, and the latter effects are very rarely completely recovered from. Had these nerves been sutured at the time of the injury secondary results would not have taken place. And our purpose in bringing the matter now before the profession is to insist on the necessity of immediate suture in all cases where the main nerves are divided. It should be as much a rule of practice to bring together the cut ends of a divided nerve as to stitch the wound in the muscles or skin.

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We are aware that this list is incomplete, as cases of nerve section have been treated by suture by Atkinson and Jessop of Leeds, by Macewen of Glasgow, and we believe by many other surgeons, without the particulars being recorded in any medical journal. There are also cases referred to by Nicaise as having been recorded by Richet, Verneuil, Esniarch, Holden, Savory, and Parks, but of which we have been unable to find any trace in the current literature of the last twenty years. The present list may, however, prove of value to any one wishing to enter more deeply into the subject than we have been able to do in the narrow limits at our disposal.

EMBOLISM OF THE MIDDLE CEREBRAL ARTERY.

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IN the following paper I intend first to give an account of three cases of embolism of the middle cerebral artery, occurring recently in the practice of the Western Infirmary, in two of which, while acting for Dr. Joseph Coats, I had the opportunity of making the *post-mortem* examination; and, secondly, to refer briefly to some of the more important pathological and other points which they serve to illustrate.

For liberty to make use of the clinical records of the cases I am indebted to the great kindness of Professor Gairdner, Professor M'Call Anderson, and Dr. Gavin P. Tennent, in whose wards the patients were treated until the time of death.

CASE I.—George C—, aged 23, a labourer, was admitted on the 24th January, 1883, to Ward II, under Professor M'Call Anderson, complaining of pain across the front of the chest, worst at the left side over the heart.

Until three years ago he was perfectly healthy, never having been laid up, except occasionally by headache. At this time (three years ago), after an unusually hard day's work, at which he had freely perspired, he got a chill, and on the following day he was so ill with pains in his joints as to be unable to rise from bed. Nearly every joint in his body was attacked. The affected joints were swollen and painful, and remained so for a longer or shorter period. The pain and swelling shifted from joint to joint, all, however, being ultimately left with their mobility quite unimpaired. He perspired a great deal, particularly at night, and noticed that the sweat had a very sour and offensive odour. This attack confined him to bed for three months, and in all he lost by it about one year's work.

At intervals, since the illness described above, he has been troubled by pain over the cardiac region and by palpitation, and on several occasions, as when going up stairs or otherwise exerting himself more than usual, he has felt decidedly "blown" and short of breath.

On Wednesday, the 16th inst., eight days before admission, while at work, he was seized quite suddenly by a severe

spasm of pain over the region of the heart, which was so intense as to prevent his moving or attempting to breathe for a minute or two. In short, he felt as if he were about to die on the spot. He has never had any such severe seizure either before or since.

The family history is satisfactory; his father and mother are alive and well, the former aged 49, the latter 46. His three brothers and two sisters are strong and healthy; and of four who died young he can tell nothing. There is no history of rheumatism in any member of the family.

On admission the apex beat was found to be strong, heaving, and displaced considerably downwards and to the left, with a corresponding increase of the area of cardiac dulness to that side. On auscultation a loud ventricular systolic murmur, indicative of extreme mitral regurgitation, was heard at the apex; there was also accentuation of the second pulmonic sound; and marked dulness at the base of the left lung was noted.

The temperatures have on the whole been pretty normal, but during two periods after admission a very decided evening rise was observed. The first of these (corresponding with an attack of diarrhoea) extended from 7th March to 2nd April, and the second from 7th May to 26th May. During these intervals the temperatures at night were seldom below 100°, and on several occasions touched 102·4°.

During the first half of his residence in the Infirmary the amount of urine was often considerably above the normal, being frequently 80 ounces and once 100. During the latter half the amount was rather under normal, and for the last fifteen or sixteen days of life, so small that it could not be collected. The specific gravity varied from 1010 to 1013, and it was acid in reaction. Throughout the whole period of observation it presented a smoky appearance, and contained considerable quantities of albumen, blood, and tube casts.

For a month or two after his admission, so long as he remained quietly in bed and did not exert himself, he felt pretty well; and but little change was observed in his condition until the beginning of April, when he was again seized with several attacks of angina pectoris. For this a 1 per cent solution of nitro-glycerine was administered, beginning with 1 drop doses gradually increased to 4 or 5 every six hours. This treatment was discontinued on the 30th of April, as the attacks of angina had disappeared.

On the 23rd of May, after having complained of severe pain in the head for two days, he was suddenly seized with loss of

power in the right arm and leg and right side of the face. Throughout the day he remained perfectly unconscious, although he was able to swallow fluids, but not solids. He recovered consciousness next day, and attempted to speak, but could not be understood. He lay in a very helpless condition until the 28th of May, when he began to recover the power of his right leg, but the right arm and the right side of the face presented not the slightest signs of improvement. The indistinctness of speech still continued, and no reliable information as to his state could be obtained from him, and it could not be determined accurately whether the impairment of speech was really aphasic or simply due to the inability to articulate. From this time he grew steadily worse, and died upon the 9th of June.

Upon the 12th of June, 1883, I made a *post-mortem* examination in this case with the following result.

External appearances.—There was some œdema of the general subcutaneous tissue.

Chest.—In both pleural cavities there was a considerable amount of red fluid, and the pericardium contained several ounces of clear, serous fluid. The heart was very considerably enlarged, weighing $20\frac{1}{4}$ ounces. The right ventricle was much dilated, and the tricuspid orifice easily admitted six fingers. The left ventricle was greatly hypertrophied and dilated. On the curtains of the mitral valve were numerous fringe-like warty vegetations, which were more abundant on the anterior than the posterior curtain. The valve was not contracted, easily admitting three fingers. On the endocardium of the left auricle a large area of recent endocarditis was discovered, which had no relationship whatever to the valve, and on whose surface numerous vegetations were found. The aortic valve was competent, and a very slight line of recent endocarditis existed on its curtains. The tissue of the organ generally was pale and flabby.

The lungs were non-adherent, and, except for the presence of œdema, were normal in appearances.

Abdomen.—There was a very slight amount of fluid in the peritoneum.

The spleen was very much enlarged, and at its upper extremity there was a large, pale, soft infarction of a white or fawn colour, measuring $1\frac{3}{4}$ inch vertically, and 3 inches transversely. The organ itself was engorged with blood, and weighed $26\frac{1}{2}$ ounces.

The kidneys were much increased in size, weighing $12\frac{1}{4}$ and $12\frac{3}{4}$ ozs. respectively, and were greatly discoloured and decom-

posed. The capsule was slightly adherent, and on section the cortex was seen to be generally of a white colour, with numerous dark spots and streaks, the line where it joined the pyramids being somewhat ill defined.

The liver was slightly fatty, and the bladder healthy. The stomach and bowels were not examined.

Head.—There was nothing special to note concerning the membranes, base, or convolutions of the brain. On opening into the left lateral ventricle, an area of softening was observed in that portion of the corona radiata lying external to the corpus striatum. This area corresponded to a tract of brain substance which was supplied by a branch of the left middle cerebral artery, which was plugged by a large embolus. The plug was so large that it looked as if the main trunk had been occluded, but it was found that a bristle could be passed through the main stem, right past the embolus. In the anterior branch of the internal capsule, extending from before backwards for about an inch, was a small recent punctiform hæmorrhage, dependent probably on a later embolic lesion. The colour of the softened area was not very obviously different from that of the surrounding brain tissue.

The microscope revealed a generally granular condition of the renal epithelium, with frequent fatty metamorphosis, and a considerable amount of blood in the convoluted tubules. In some situations the blood presented a brown and granular appearance—in others it was evidently quite recent.

CASE II. Isabella M'L., æt. 15, was admitted to Ward VI, under Professor Gairdner, on the 25th May, 1883, complaining of swelling of the feet and legs, and of a pain across the lower part of the back, supposed by her to have been due to exposure to cold, about three weeks before admission.

The exposure took place upon Tuesday, the 8th May, and on Thursday, the 10th, she felt her legs stiff, and on examining them, found them swollen both at the knees and ankles. She had not up to this time experienced any shiverings, but on Friday, the 11th, she did so; at this time she was also very thirsty, but neither then nor since has she suffered from headaches.

She continued to go about the house as usual until the following Sunday, 13th May, when, feeling "tired and weary," she remained in bed. At this time she first experienced pain across the loins, which has since continued, being specially severe at night, sometimes preventing sleep. She remained in

bed all the week, and on Sunday morning, the 20th May, when she awoke, her face was swollen to such an extent that her eyes were almost closed; but previous to this she is quite certain that the swelling was confined to her legs. This state of matters continued until her admission to hospital on Friday, the 25th May. When she was dressing to come to the Infirmary, she noticed that her body generally was swollen, so that her dress could not be fastened. During the last eight days she has suffered from a sore throat, which makes it difficult for her to swallow, but which does not appear to have any connection with the swelling of the body.

During childhood, she says, the "spinal cord in her back was wrong," and for a time she was unable to walk, but since this, until the onset of the present illness, she has always been strong and well. On questioning, she admits that she had *scarlet fever* about seven years ago, the attack, however, having been a very slight one.

The face is now, 28th May, little if at all swollen, but there is very considerable œdema of both feet and legs. There is also considerable effusion of fluid into the left knee joint, without any pain. The integument of the thorax is also œdematous, especially posteriorly. Although the abdomen is distinctly enlarged, and bulges somewhat in both flanks, there is no reliable evidence of fluid in the cavity of the peritoneum. Pressure over the lumbar region on each side produces pain.

There is an abnormally marked curvature of the sternum in its upper part, and at the lower portion of the dorsal region of the spinal column there is a prominent "lump," evidently an angular curvature of the spine.

Percussion over both apices gives a good note, but as the bases are approached (on the right side, anteriorly as well as posteriorly), distinct dulness is obtained. At both apices there is some degree of puerile breathing, but the respiratory murmur is free from râle. In front, on the right side, from a short distance below the clavicle, loud mucro-crepitant râles are heard, similar, but much finer, râles being heard at the right base behind on deep inspiration, although both here and at the left base the respiratory murmur is scarcely heard during tranquil breathing, and the vocal fremitus is absent.

The cardiac impulse is felt, only when the patient lies on her left side, in the third intercostal space, and distinctly less so in the fourth. The cardiac sounds are indistinctly heard in the anatomical situation of the apex, being much more distinct over the area of impulse. There is a suspicion of peri-

cardial effusion, but the evidence of this is not quite reliable. No murmur or abnormality of the sounds is made out.

The tongue is, on the whole, clean; the bowels regular; and the pulse, 120 per minute, is small and easily compressed. The urine collected on the 25th and 26th May measures 40 and 57 ounces respectively, contains abundant albumen, but no blood, and throws down a whitish deposit containing hyaline, fatty, and granular tube-casts.

8th June, 1883.—To-day Dr. Middleton examined the case, and made the following note:—

Last Sunday morning, 3rd June, 1883, between 10 and 11 A.M., the nurse noticed that the patient was paralysed on the right side, her attention not having been drawn to the girl by any cry or sign; nor is it possible to determine whether there was any loss of consciousness, for, though her speech is little if at all affected, there is evident reluctance to speak, and this appears to have become more and more marked. There is now complete paralysis of the right arm and leg. The face presents, on the right side, distinct loss of expression. The tongue is protruded to the right of the middle line, and the left angle of the mouth is drawn upwards. In taking liquids, there is some dribbling on the right side of the mouth, and on testing with the finger inside the cheek, there is absolute loss of power in the right buccinator. There is little if any difference in the wrinkling of the brow on the two sides, and both eyes are capable of normal movement. The right nostril is slightly less dilated than the left, and the uvula is directed towards the paralysed side, there being also, if anything, slight flattening of the right arch of the palate.

Weber's test is applied, but not with great attention to detail. There is evidently on the paralysed side in the upper limb some inability to distinguish the two points as two, at ordinary distances from each other; and although she distinguishes the head from the point of a pin, she fails to locate exactly the site of contact, pointing to the fingers when the back of the hand is touched. There seems to be no impairment of the sense of taste. The pupils are equal, slightly dilated, and movable. The speech is clear but low; and, although she appears listless and dull, there is no evident impairment of the mental faculties. The tongue is now much furred and the breath very offensive; the bowels are loose. Except that the bronchitic râles are somewhat more abundant examination of the chest does not reveal any change.

13th June, 1883.—To-day Dr. Gairdner, along with Dr. Middleton, made a careful examination of the heart in this

case with special reference to the question of pericardial effusion. As the result of this, the presence of pericardial effusion was found to be extremely improbable. The quality of the first sound in the third interspace was doubtful, but the nature of the alteration could not be made out—Dr. Middleton inclining to think there was a V. S. murmur, while Dr. Gairdner almost suspected an A. S. The condition of the abdomen at this time was taken as almost normal, with perhaps a little dulness in the flanks, but no swelling. The pulse could be easily counted at the heart, but was with difficulty, if at all, appreciable at either wrist. The extremities were cold; and the œdema of the lower limbs had subsided somewhat on the left, but not on the right side.

14th June, 1883.—This morning, at 6 A.M., Dr. Stewart, house physician, was called to this patient on account of severe pain (without physical signs) to the left of the umbilicus, which was relieved by chloroform fomentations. Towards noon she became slightly comatose, and at 1.45 P.M. she died in a state of profound coma.

On the 15th June, 1883, I made a *post-mortem* examination of this case, of which the following is an account.

External appearances.—There is slight œdema of the ankles; and upon the front and inside of both thighs there are well marked lineæ albicantes. Upon opening the abdominal cavity a considerable quantity of a brown turbid fluid escapes.

Chest.—There is a small quantity of clear fluid in the pericardium. The heart, weighing $7\frac{3}{4}$ ounces, presents a slight dilatation of the tricuspid orifice, which admits four fingers; and also a few small warty vegetations on the mitral curtains, one of those being of considerable size, and presenting a broken appearance as if recently lacerated.

The lungs are œdematous, and show considerable hypostatic engorgement, but otherwise present nothing remarkable.

Abdomen.—On the peritoneal covering of the intestines, and also on that of the internal surface of the abdominal wall there is an abundant recent exudation of fibrin.

The spleen is somewhat enlarged, weighing $8\frac{1}{2}$ ounces, and on its convex surface an area (corresponding to the base of a large recent hæmorrhagic infarction) is found covered by dense fibrinous deposit. The infarction is of a wedge shape and of a reddish-brown colour. In one of the vessels at the hilus an embolus is discovered, with a long but much thinner thrombus added to it.

The kidneys are very much enlarged, weighing respectively $10\frac{1}{2}$ and 11 ounces. The capsule is non-adherent, and the

surface is pale with, scattered over it, numerous intensely injected vascular networks. The cortex is very pale, increased in thickness, and not separated from the pyramidal portion by any well marked line of demarcation. The pyramids are red in colour. In one of the kidneys a small comparatively recent infarction was discovered.

The liver, weighing 59 ounces, is very slightly hyperæmic.

The stomach and intestines are healthy, except for the layer of recent fibrinous exudation on their peritoneal surfaces—the cause of the peritonitis having in all probability been the infarction of the spleen, in the neighbourhood of which it was most intense.

Head.—The dura mater is firmly adherent to the calvarium. On the external aspect of the brain nothing remarkable is noted; but, on following the left middle cerebral artery up the fissure of Sylvius, an embolus is discovered in the main stem where it divides into two large branches. Just behind, and not at all involved in, the plug, a small branch is given off which is found to have a somewhat long course. It first gives off a branch to the temporal lobe, and then passes on to be finally distributed to the operculum and neighbourhood.

On laying open the hemispheres the corona radiata is found very distinctly softened in its middle region. The softening extends down to the neighbourhood of the corpus striatum, but this, as well as Broca's convolution, is not involved in it.

CASE III.—Mrs. M., æt 42, housewife, was admitted on 2nd July 1883, to Ward IX, under Dr. Tennent.

When brought into the ward she was found to be in a state of complete coma.

Her husband states that the illness began 4 days previous to her admission. On that day she was apparently in perfect health when she got up in the morning, and went about her household duties till the afternoon. She was then sitting on a chair, when her son, a boy of twelve, saw her try to rise and walk towards the bed, which she managed to reach, but the boy noticed that she dragged the right leg after her. She was, however, quite unable to get into bed without assistance, and during all this time she never spoke a word. After being put into bed it was noticed that she never moved the right arm, hand, or leg, and although at first evidently quite sensible, she gradually became quite unconscious. Since that

day she has steadily got worse and has passed water in bed; the bowels, however, have not been moved since the onset of the illness, nor has she taken any food with the exception of small quantities of beef tea.

Previous to this illness she was apparently a very healthy woman, her husband stating that, as long as he can remember, she was never a day in bed except during her confinements. She has 3 children alive and in fairly good health; one died in infancy, and she has had no miscarriages.

On admission, she was in a state of profound coma, and breathing very stertorously. The respirations were very irregular, and occasionally quite of the "Cheyne-Stokes" character. The right arm and leg were evidently paralysed, as she never moved them, but she moved the left occasionally, even when not spoken to or touched in any way. The arms of both sides, however, were very rigid, and when her left hand or arm was touched, she resisted very strongly.

The right pupil was contracted; neither pupil responded to light. The eye-balls were very slightly sensitive to touch. The tongue was dry and baked. The face and lips were slightly livid, and the whole body was covered by a cold sweat; the pulse 100, soft and easily compressed; temperature on admission 100° F.

Auscultation of the heart could not be performed satisfactorily on account of the stertorous breathing.

3rd July, 1883.—At 9 o'clock A.M. Dr. Tennent made the following observations. The pulse, 92, is very soft and feeble, but steady and regular. The respirations, 52, are laboured and accompanied with much mucous throat-rattle. The conjunctivæ are almost entirely insensitive, and the pupils, which are widely dilated, do not respond in the least to light. There is very slight divergence of both eyes, especially the left.

There is considerable lividity of the face, and she lies with the mouth widely open. Unconsciousness is complete; and the temperature is 103·6°. The skin is slightly moist, with no rash; the cardiac sounds cannot be heard on account of the extreme pulmonary disturbance.

There is very considerable increase of the abdominal aortic pulsation, this being very distinctly visible as well as palpable, and it is also widely diffused all over the epigastrium. The percussion in front and at the sides is normal, as are also the areas of hepatic, splenic, and cardiac dulness. The radial arteries are perfectly straight, and there is no unusual prominence of the temporals.

Evening.—After the previous note was made the temperature was taken in the rectum and was 105° F. She gradually sank, and at 11 A.M. the temperature in the rectum was 107·4°. At 11·30 A.M. she died, and the temperature being taken soon afterwards was still 107·4° F.

Permission was not granted for an examination of more than the head in this case, and the following is Dr. Joseph Coats' account of the appearances observed. On removing the calvarium and dura mater, the two hemispheres present a very striking difference. The right is firm, and the sulci somewhat obscured—the left is soft and the sulci contain serous fluid. On cutting into the hemispheres the left is found very markedly softened, the softening involving the basal ganglia and the entire middle and anterior part of the hemisphere. It is noted that in the softened districts the grey matter of the convolutions has a very pale colour, and it is imperfectly demarcated from the white substance beneath. The softened white substance is in some parts almost diffuent, and the walls of the lateral ventricle are quite irregular from the softening. The parts unaffected by softening are these—anterior part of hemisphere (supplied from the other side through the anterior communicating), posterior part of hemisphere, posterior part of thalamus opticus, cerebellum, pons, and medulla oblongata.

On examining the vessels at the base, a plug is found to occupy the internal carotid just after its exit from the skull. This clot is pale and adherent. It extends into the left middle cerebral and to the anterior cerebral, both of which it completely occludes at their origin and for a short distance onwards, the rest of the artery being distended with a dark, soft, recent clot.

The foregoing cases are typical examples of localized softening of the brain due to a very obvious cause; yet, although the condition is now well known and has been minutely described by many authorities, and apart from the fact that the three cases occurred in the routine work of the pathological department within as many weeks, they are interesting from a clinical, a pathological, and a statistical standpoint.

One of the first points of interest clinically is the question of diagnosis. In reference to the differential diagnosis between thrombosis and embolism on the one hand, and these affections and hæmorrhage on the other, Nothnagel writes—"the diagnosis of hæmorrhage, or of embolism or thrombosis, cannot in any case be unreservedly made. Under certain conditions it

may be established, to be sure, with a probability which borders on certainty, and indeed with greater positiveness—supposing all the characteristic symptoms to be present—in cases of softening than in those of hæmorrhage. In other cases, the probabilities on the two sides may be equal, and the diagnosis can rest only on conjecture.”* And Dr. Russell Reynolds remarks, “at the onset of the attack it may be impossible to distinguish the nature of the malady.”† The cases which have been related in this paper corroborate these statements in every detail. In the first case, where there was a long standing and well recognised heart affection, suddenly complicated by the occurrence of hemiplegia, the diagnosis was almost certain: in the second, where acute Bright’s disease was the prominent feature, and the heart lesion of a more doubtful nature, it was probable:—although in both the concomitant occurrence of embolism of the spleen leading to its enlargement was a strong corroborative point. It is interesting, however, in this regard to note the caution of Dr. Hammond who, having diagnosed cerebral embolism in a case of mitral regurgitation, found death to have resulted from hæmorrhage into the corpus striatum.‡ Dr. J. Hughlings Jackson has also reported a similar case.§ In the third of our cases the similarity to what occurs in ordinary cerebral hæmorrhage was most striking, so much so as to render a diagnosis between embolism and hæmorrhage almost impossible.

With regard to the symptomatology of acute softening of the brain due to cerebral embolism, it is mainly of interest to consider the mode of onset and the progress of the condition. Russell Reynolds|| and Nothnagel¶ state that acute cerebral softening may be ushered in by an apoplectic seizure, by convulsions, or by delirium, the latter, however, though sometimes met with (Hammond), being rather exceptional in cerebral embolism. In the first and third of our cases there was a typical apoplectic seizure; while in the second, it is extremely doubtful if the hemiplegia was preceded by any loss of consciousness whatever, and in connection with this, Nothnagel remarks “quite a number of cases could be cited where the

* *Cyclopædia of Medicine*, Ziemssen, English Edit., 1877. Vol. xii, p. 205.

† *A System of Medicine*. Edited by J. Russell Reynolds, M.D., 1878. Vol. ii, p. 484.

‡ *On Diseases of the Nervous System*. By Wm. A. Hammond, M.D. New York, 1871. P. 133.

§ *British Medical Journal*. 29th Oct., 1870. P. 459.

|| *Loc. cit.*, p. 448.

¶ *Loc. cit.*, p. 195.

coma was either entirely wanting, or was replaced by dizziness and slight confusion of mind of only a few seconds' duration." With regard to the character of the coma in cerebral embolism there seems to be no special characteristic by which it may be distinguished from that occurring in hæmorrhagic extravasation. Gowers,* however, points out that in embolism it is less profound than in hæmorrhage. In the first of our cases it was less profound and of shorter duration than in the third, in which it continued absolute till the time of death, six days after the onset of the attack; and, in connection with the duration of unconsciousness and the mode of death in the third case, it is interesting to note Nothnagel's remark that "death does not take place after so short an interval as in some cases of hæmorrhage. Only a few cases are on record which have ended fatally within the first twelve hours."

With regard to aphasia, M. Dax, M. Broca, and Dr. Hughlings Jackson have done more, perhaps, than any others to fix the seat of the lesion in this interesting affection, and the latter was one of the first to show that the most frequent cause was plugging of the left middle cerebral artery by an embolus.† In the first of our cases there was upon the recovery of consciousness a very distinct impairment of the power of speech, which was most probably, at the outset at least, aphasic, but concerning this no very accurate opinion could be formed, owing to the fact that the patient, until he died, was so ill as not to allow of any prolonged or minute examination. In the second, aphasia was quite absent, and this is to be associated with the fact, noted in the *post-mortem*, that behind the obstruction in the left middle cerebral a small branch was given off, which ramified in the region of, and supplied, Broca's lobe.

In reference to the progress of such cases, it is interesting to note that, in the first of those here related, the patient, five days after the onset of the attack, began to recover the power of his right leg. There are two possible ways in which this might occur—(1.) by restoration of nutriment to the brain by means of collateral circulation, although it is extremely doubtful whether the anastomoses are free enough to permit of this, in the majority of cases at least (Charcot); or (2.) by some alteration in the position or composition of the embolus, occurring before the brain tissue is irretrievably destroyed—the latter I think being probably the explanation in our

* *A Dictionary of Medicine.* Edited by Richard Quain, M.D. London: Longmans, Green & Co. 1882. P. 154.

† *Loss of Speech: its Association with Valvular Disease of the Heart, &c., &c. Clinical Lectures and Reports, London Hospital.* Vol I, p. 388.

case. As has been noted already, the embolus looked as if it occluded the main stem of the artery at a place where it divided into two branches, but it was found that a bristle could be pushed past the obstruction with considerable ease, thus leaving only one of the branches completely occluded. At the period of occlusion it is not at all improbable, then, that the main stem was plugged, and that afterwards, by contraction of the embolus, a partial restoration of the circulation occurred.

Since 1820, when the works of Lallemand and Rostan were published, the pathology of cerebral softening has received much attention at the hands of various observers. At first the condition was supposed to be due in the majority of cases to inflammation, and sometimes to senile change. Even at this early period, however, Rostan* and Abercrombie† insisted upon the fact that cerebral softening was often associated with calcification and obliteration of the arteries at the base of the brain, the latter suggesting "that this condition of the arteries of the brain may be a frequent cause of the *ramollissement*, especially of that form of the disease which occurs without marks of inflammation in persons much advanced in life, in the same way as it leads to gangrene of the extremities."‡ Since then the connection between softening and lesions of the vascular system of the brain has every day been made more clear, and in 1847, on the publication of Virchow's first memoir on Embolism, its intimate relationship to this particular state was first established.

Of great importance in the consideration of *ramollissement* due to cerebral embolism is an accurate knowledge of the distribution of the arteries of the brain, and for much of our information on this subject we are indebted to the labours of Professor Heubner§ and M. Duret.|| The main point, as to which these authorities differ, is as to the degree of the anastomosis which takes place between the arteries supplying the cortex. Heubner maintains that the communications are pretty free and take place by means of arteries of at least a

* *Recherches sur le Ramollissement du Cerveau.* Paris, 1823; 2nd edition, p. 170.

† *Pathological and Practical Researches on Diseases of the Brain, &c.* Edinburgh, 1828; pp. 23 to 25.

‡ *Practice of Physic.* Cullen & Gregory. Edinburgh, 1829. Vol. ii, p. 306.

§ *Ernährungsgebiet der Hirnarterien.* *Ctrblt. f. d. Med. Wiss.* 1872, No. 52.

|| *Rech. anat. sur la circulation de l'encéphale.* *Arch. de Phys. Normale et Pathol.* 1874.

millimetre in diameter, whereas Duret holds, and in this he is supported by Charecot,* that the anastomosis is not at all free, and that when it does occur it is through the medium of vessels only a fourth or a fifth of a millimetre in diameter. With this exception their results are similar; and, as it is the middle cerebral with which we are immediately concerned, we shall only consider in detail the distribution of this vessel. By its ganglionic or central branches it "supplies the entire nucleus lenticularis, a portion of the corpus striatum, the capsula externa, and the anterior branch of the capsula interna." It divides into four terminal branches, the first of which supplies Broca's convolution; the second and third supply respectively the ascending frontal and the ascending parietal convolutions; and the fourth passes to the gyrus angularis and the first sphenoidal convolution.

Bearing in mind these statements with regard to the distribution of the middle cerebral, we are now in a position to consider whether the facts in the foregoing cases correspond to the description.

In the first case the softening was most noticeable in the corona radiata, external to the anterior half of the corpus striatum, and was of limited extent. The branch of the Sylvian which was occluded was the second of the four terminal ones, and the ramollissement was mainly observed in the region of its distribution—viz., the neighbourhood of the ascending frontal convolution. The first branch, or that which goes to Broca's lobe, was not all involved (but it, as well as the main trunk of the Sylvian, may quite possibly have been partially or wholly obstructed at the outset, as the plug was a large one), and the clot was far beyond the place of origin of the ganglionic branches. The basal ganglia were not affected, except in one situation—viz., the anterior branch of the internal capsule, where there was a small punctiform hæmorrhage, which was probably due to a recent embolic lesion of one of the ganglionic branches. As has already been mentioned and commented upon, in this case there was a certain degree of recovery in the leg after a few days. The case, therefore, might quite well be quoted in favour of the view that the collateral circulation of the cerebral cortex is somewhat free (Heubner's view); but, although this position is quite tenable, I am rather inclined, as I have said, to regard the improvement as probably due to some alteration in the embolus itself, permitting of a re-establishment of the circulation.

* The Localisation of Cerebral and Spinal Diseases. *New Syd. Soc. Trans.* London, 1883; p. 55.

In the second case the softening occupied the middle region of the corona radiata, but not the corpus striatum or Broca's lobe, and was more extensive than in the first, three out of the four terminal branches being occluded. The artery to Broca's lobe and neighbourhood was given off considerably proximal to the embolus, and so this area was not softened.

In the third case the softening affected the entire area supplied by the left middle cerebral, the whole artery being blocked, and also a considerable portion of the region supplied by the anterior cerebral. As will be seen from the report of the *post-mortem* the ramollissement in this case was of the most perfect kind.

In will thus be seen that in the cases just recorded, where different parts and different branches of the middle cerebral have been involved, we have a very strong corroboration of the correctness of the results of Duret and Heubner with regard to the cerebral circulation—and the evidence is all the more valuable because it is pathological evidence.

It is of great interest also to note the great rapidity with which the most extreme softening was established in the third case, the entire duration of the affection being only about six days.

With regard to the source of the embolus, it is to be noted that in the first it was derived from the cavity of the left auricle or the curtains of the mitral; and in the second from the mitral curtains, the vegetations on which were torn looking. In reference to the third case, the source of the embolus is unknown, as permission was not granted to examine the body. It is worth while remarking, too, that all three cases occurred in the *left* middle cerebral.

I have thus drawn attention to some of the diagnostic and pathological questions illustrated by the cases which have been recorded; and, in conclusion, I think it may be interesting to draw up a short statistical table, showing the proportional relationship which cerebral embolism bears to other affections of the brain, as illustrated by cases observed in the pathological department of the Glasgow Western Infirmary since it was opened in 1874.

Out of 1,029 pathological examinations entered in the Infirmary reports since the opening of the institution, there have been recorded seventy-nine cases of disease of the brain and cerebellum (excluding injury by fracture of the skull or otherwise), a synopsis of which is given below. It will be understood that where more than one pathological condition was

present, the case is entered under the head of the most prominent.

Cerebral hæmorrhage,	21
With miliary aneurisms,	8
{ Of middle cerebral, 3 }	
{ „ posterior „ 1 }	
{ „ anterior „ 1 }	
{ Indefinite 3 }	
Cerebral softening,	10
Due to disease of vessels and thrombosis,	6
„ embolism,	3
{ Left middle cerebral, 2 }	
{ Left intl. carotid, mid. }	
{ and antr. cerebral, 1 }	
Doubtful,	1
Tumour,	14
Syphilitic,	2
Tubercular,	7
Glio-sarcoma,	2
Base of skull and brain,	1
Indefinite,	2
Tubercular meningitis,	9
Atrophy,	4
Abscess,	3
Aneurism, uncomplicated,	2
Cysts,	2
Thrombosis of sinuses,	1
Œdema of membranes,	2
Hyperæmia,	1
Cerebro-spinal meningitis,	2
Hæmatoma of dura mater,	2
Brain in general paralysis,	2
„ acute mania,	1
„ hydrophobia,	1
„ chorea,	1
Indefinite,	1
Total,	79

From the table given above, it will be seen that out of seventy-nine cases where the brain was examined after death, cerebral embolism occurred only three times, and it is certainly a striking coincidence that the three cases occurred during last summer within three weeks of each other.

ABSCCESS: A CLINICAL STUDY. BEING AN INVESTIGATION INTO THE HISTORIES OF 100 CASES OF ABSCESS OCCURRING IN PRIVATE FAMILY PRACTICE.

By J. STUART NAIRNE, L.F.P.S.G.

I FEEL some apology is due for the imperfect manner in which the following essay is presented. The subject is so vast and important that I could not hope to tackle it in all its aspects. In fact, there have been great workers in this field with whose work I could not hope even to compare mine. The whole questions of inflammation, of the formation of pus, of its nature, of the tissues that most readily suppurate, of pyæmia, and a host of other questions naturally rise up for discussion. I have not attempted any of these. I have devoted practically the results of more than ten years' notes of surgical cases to the investigation of a few things which I have long had in my mind. This essay was commenced years ago, and now I feel it is not finished. It is not easy to investigate and note the clinical histories of even a hundred cases as they ought to be done; but more than this number of cases I could not possibly find time to work with. Of course I have not related all the cases of abscess that have passed through my hands: this would be impossible; neither have I in any sense selected the cases. I have taken them from my note books as they turned up, and where I had secured sufficient information to make the case valuable as a clinical record. This record is therefore valuable so far as it goes. But it could only be by the united investigations of a large number of workers that sufficient data could be given for drawing quite accurate conclusions. The number of cases some may think is therefore too small; and I quite agree that this is so; but if another one will produce another hundred independent cases we would soon have sufficient data to draw absolutely accurate conclusions.

I have only further to observe with regard to treatment, that in the majority of simple abscesses I have rarely adopted the details of antiseptic treatment as promulgated by Lister; but in all those, or nearly all those where the abscess seemed to be the indication of some more serious trouble, I have adopted the whole details, spray and all. At this time of day it is not necessary to repeat these details; and I have therefore saved so much time in the relation of the cases.

ONE HUNDRED CASES OF ABSCESS OCCURRING IN FAMILY PRACTICE.

No.	Sex, Age, Position and Nature of Abscess.	Treatment, Date, Result.	Days.
1	F. Age, 6 months. Axillary; glandular; after vaccination.	Poultice; incision.—Nov. 1874.—Cured.	7
2	M. Age, 1 yr. Cervical; over scalp; over joints of hands and feet; on back, belly, and legs; very numerous strumous looking abscesses; child not vaccinated.	Sponging with carbolic acid lotions; poulticing; incision.—Jan. 20 to March 18, 1882.—Cured.	56
3	M. Age, 1½ yrs. Posterior cervical; glandular; child teething; head and face eczematous.	Poultice; minute puncture; closure of wound by next day; re-accumulation of pus; free opening.—July 25 to 31, 1882.—Cured.	6
4	F. Age, 2 yrs. Anterior cervical; glandular; child teething.	Minute puncture at superior part through sound tissue; removal of pus by pressure; application of pad; re-accumulation of pus; puncture; re-accumulation and puncture for the third time.—February 14 to 24, 1882.—Cured.	10
5	F. Age, 2 yrs. Cervical; head and face eczematous; child teething.	Poultice; incision; poultice.—February 9 to 17.—Cured.	8
6	M. Age, 2 yrs. Region of anus.	Poultice; incision; carbolic acid lotion.—September 14 to 19, 1882.—Cured.	5
7	F. Age, 3 yrs. Cervical; over scalp, hips, and limbs; numerous abscesses.	Incision; poultice.—October 1872.—Died.	28
8	F. Age, 3 yrs. In region of anus.	Poultice; incision; lotion of sulphate of zinc and chloral.—July 27 to 29, 1882.—Cured.	2
9	F. Age, 4 yrs. Gland in right groin.	Application of camphorated zinc ointment; poultice; incision; carbolic acid lotion.—April 1881.—Cured.	6
10	F. Age, 5 yrs. Hip; supposed to have been due to a fall.	Rest in bed with long splint; incision in gluteal region; daily syringing with carbolic lotion; incision on front of leg; drainage.—March to May 1877.—Cured.	71
11	F. Age, 6 yrs. Sub-maxillary; child suffering from influenza; swelled tonsils; deranged stomach.	Incision; lotions; purgative; tonic.—November 1881.—Cured.	5

12	F. Age, 6 yrs. Cervical; child's head covered with scabs; poor state of health; no appetite; fed chiefly on tea; no porridge.	Carbolic acid lotion to head; poultice; incision; wound kept open by strip of lint; tonics.—October 1876.—Cured.	14
13	F. Age, 6 yrs. Cervical; and large effusion under scalp due to fall on head.	Poultice; evaporating lotion to scalp; solution of ammonium chloride applied to head on a piece of lint; calomel.—January 9 to 30, 1881.—Cured.	21
14	F. Age, 6 yrs. Elbow; strumous; glandular; had formerly cervical abscess.	Fomentation; incision.—April 1878.—Cured.	3
15	F. Age, 6 yrs. Cervical; after scarlet fever.	Incision; gangrene set in; carbolic acid lotion.—May 1876.—Died.	21
16	F. Age, 6 yrs. Abdominal; discharging through umbilicus; after enteric fever.	Poultice; incision; excision of portions of omentum.—April 8 to June 24, 1882.—Died.	77
17	F. Age, 7 yrs. Cervical; child in poor health for some time.	Poultice; tonic; purgative; incision; zinc and chloral lotion.—December 18 to 22, 1881.—Cured.	4
18	F. Age, 7 yrs. Two abscesses on front of leg in line of lymphatics; child poorly fed.	Incision; tissues ulcerated, leaving open sac; deep cavities with everted cold edges; sponged with permanganate of iron; tonics.—March 1880.—Cured.	4
19	M. Age, 7 yrs. Hip-joint; complicated; spine disease; lumbar abscess.	Incision; carbolic acid syringing and dressing.—February 1881 to March 1882.—Died.	300 +
20	M. Age, 7 yrs. Cervical; child poorly nourished; catarrhes and ulcers over long bones.	Incision; antiseptic; tendency to ulceration of skin; blis-tering.—February to April 1878.—Not cured.	89
21	F. Age, 7 yrs. Cervical; after scarlet fever.	Poultice; incision; drainage.—April 1881.—Cured.	2
22	M. Age, 9 yrs. Back of hand, caused by blow from pick; whole skin raised from subcutaneous tissue, forming large bag of pus.	Small incision; thorough emptying; padding; antiseptic dressing; slight accumulation of pus; re-opening; bone found diseased.—October 1872.—Not cured.	21
23	M. Age, 9 yrs. Hip-joint; large abscess in front and side of thigh; boy already lame; had abscess formerly in the same situation.	Fomentation; incision; distension with carbolic acid lotion; drainage.—April to May 1877.—Not cured.	60
24	F. Age, 9 yrs. Elbow; strumous girl; enlarged cervical and maxillary glands.	Incision; bone found diseased; carbolic acid lotion dressing.—October to December, 1879.—Not cured.	91
25	F. Age, 9 yrs. Cervical; after influenza.	Poultice; incision.—December 19 to 25, 1879.—Cured.	6
26	M. Age, 10 yrs. Over dorsal spinous processes; had been in existence for over a year at least.	Aspiration; done three times at intervals of about 12 or 14 days.—November 1879.—Not cured.	27
27	F. Age, 10 yrs. Cervical; head covered with scabs; in poor health.	Incision; poultice.—October 28 to 31, 1882.—Cured.	3

No.	Sex, Age, Position and Nature of Abscess.	Treatment, Date, Result.	Days.
28	F. Age, 10 yrs. Cervical; line of three abscesses; also enlarged cervical and maxillary glands; child of phthisical father.	Incision; ulceration of skin over upper abscess; painted with permanganate of iron.—January 1880.—Cured.	14
29	M. Age, 10 yrs. Cervical; delicate child; spine diseased; chronic bronchitis; skin over abscess thinned all over and not in centre only.	Incision.—May 1 to 4, 1882.—Not cured.	3
30	F. Age, 10 yrs. Cervical; subsequent to exposure.	Incision.—March 10, 1882.—Cured.	3
31	M. Age, 10 yrs. Cervical posterior; said to have been after a blow; afterwards had hydrocele.	Poultice; incision.—August 12, 1882.—Cured.	2
32	M. Age, 10 yrs. Cervical; glands both sides enlarged, and several of them suppurating. Afterwards had abscess in gum—one-fourth part of alveolar process thrown off.	Poultice; incision; cod liver oil; tonics.—1880-1882.—Not cured.	3 yrs.
33	F. Age, 11 yrs. Behind ear; also abscess in wall of ear; after scarlet fever.	Incision; poultice and fomentation.—November 4, 1879.—Cured.	3
34	F. Age, 12 yrs. Supra-clavicular; communicating on front of chest below the clavicle with another or the same abscess cavity.	Incision; subsequent injection of blistering fluid.—September 1872.—Cured.	21
35	M. Age, 12 yrs. Over ankle joint; appearing after a long time of pain and inability to walk.	Incision; antiseptic; bone found diseased.—January to October 1879.—Not cured.	300
36	M. Age, 12 yrs. Hip joint; boy already lame; laid up in bed with long splint.	Free incision; drainage; syringing of cavity with carbolic acid lotion.—April to May 1877.—Cured.	60
37	M. Age, 12 yrs. Cervical; phthisical family; boy previously had erysipelas of face; other enlarged cervical and maxillary glands.	Incision; tonics.—July 2 to 4, 1882.—Cured.	2
38	M. Age, 12½ yrs. Large swelling over ribs (5th to 8th) on right side; had come on gradually; no history of injury.	Incision; ribs found diseased.—July to August 1879.—Not cured.	60
39	M. Age, 13 yrs. On upper arm between shoulder and elbow; shoulder joint enlarged and painful.	Aspiration; repeated twice; drainage; no bare bone found.—July to August 1880.—Not cured.	60
40	M. Age, 14 yrs. Knee joint greatly swollen and painful; abscess above knee.	Camphorated zinc ointment; laudanum lotion; poulticing.—Whole year, 1881.—Not cured.	300

41	M. Age, 14 yrs. Foot, dorsum; glandular; swellings in neck; knee-joint swelled.	Incision; pressure.—June to August 1881.—Cured.	90
42	M. Age, 14 yrs. Foot, dorsum; after injury.	Incision; carbolic acid lotion.—November 1880.—Cured.	3
43	M. Age, 14½ yrs. Right leg a little above knee; knee joint swelled and painful.	Puncture; drainage.—January to March 1882.—Not cured.	90
44	M. Age, 14½ yrs. At side of anus; bowels previously constipated; no positive cause assigned; healthy-looking boy.	Incision; poultice.—December 14 to 18, 1882.—Cured.	4
45	F. Age, 15 yrs. Tonsil; inflammation spreading to pharynx; gangrene.	Poultice externally; astringent gargle; incision; inhalation of creosote vapour; chlorate of potash internally; tonics.—March to May 1877.—Died.	60
46	F. Age, 16 yrs. Cervical; following a chill.	Incision; drainage.—August 1876.—Cured.	10
47	M. Age, 16 yrs. In region of anus; phthisical boy.	Incision; carbolic acid lotion.—January 10 to 21, 1882.—Died.	11
48	F. Age, 17 yrs. Housemaid's knee; suppuration below patella bulging at each side.	Free incision; daily syringing with carbolic lotion; leg on splint.—October 18 to November 4, 1877.—Cured.	17
49	M. Age, 17 yrs. Testicle; epididymis free; no history of injury.	Free incision; zinc lotion.—September 1876.—Not cured.	30
50	F. Age, 17 yrs. Cervical posterior; cervical lateral glands enlarged; old scars.	Incision of abscess; injection of iodine; excision of enlarged and softened glands.—November 1881.—Not cured.	14
51	M. Age, 18 yrs. Bubo.	Poultice; camphorated zinc ointment; puncture at superior part; pressure; repuncture.—March 2 to 13, 1882.—Cured.	11
52	F. Age, 19 yrs. Sub-maxillary; row of bad teeth and stumps on same side.	Poultice; incision.—March 18 to April 8, 1882.—Cured.	21
53	F. Age, 19 yrs. Roof of mouth; projecting through hard palate into mouth; abscesses in gums.	Incision; extraction of roots of teeth; astringent wash.—February to April 1881.—Cured.	60
54	M. Age, 20 yrs. Abscesses in gum; connected with decayed teeth.	Incision.—March 14, 1882.—Cured.	1
55	F. Age, 21 yrs. Region of anus; after typhoid fever.	Poultice; incision.—January 1878.—Cured.	5
56	F. Age, 22 yrs. Cervical; glands on both sides of neck; after chill.	Incision; drainage; zinc and carbolic lotion; cod liver oil and Farrish's syrup internally.—July 26 to 28, 1882.—Not cured.	2

No.	Sex, Age, Position and Nature of Abscess.	Treatment, Date, Result.	Days.
57	F. Age, 22 yrs. Cervical; posterior.	Incision.—September 1 to 2, 1882.—Not cured.	2
58	M. Age, 22 yrs. Bubo.	Mercurial ointment; incision.—June 1877.—Cured.	6
59	F. Age, 24 yrs. In vulva; no cause assigned; healthy looking young woman; unmarried.	Incision.—June 1878.—Cured.	2
60	M. Age, 24 yrs. Bubo.	Camphorated zinc ointment; iodide of potassium internally; incision.—February to March 1879.—Cured.	27
61	F. Age, 25 yrs. Axillary; out of sorts for some time.	Incision; poultice.—February 3, 1881.—Cured.	8
62	M. Age, 26 yrs. Tonsil.	Application of caustic; hydrate of chloral gargle; incision. November 1876.—Cured.	24
63	F. Age, 26 yrs. Mammary; after parturition.	Poultice; incision; removal of pieces of cellular tissue.—August 1877.—Cured.	14
64	F. Age, 26 yrs. Mammary; after parturition.	Fomentation; deep puncture with tenotomy knife.—February, 1882.—Cured.	8
65	M. Age, 26 yrs. Bubo.	Ether spray daily for one week; mercurial ointment; incision; iodide of potassium internally.—September 24 to October 21, 1877.—Cured.	27
66	M. Age, 28 yrs. Tonsil; spreading into pharynx; high fever; deglutition impossible.	Incision of tonsil; inhalation of steam; application of iodine liniment.—February 1882.—Cured.	3
67	F. Age, 28 yrs. Mammary; after parturition.	Poultice; deep puncture with tenotomy knife.—October 1881.—Cured.	8
68	F. Age, 29 yrs. Mammary; after parturition.	Fomentation; poultice.—November 1878.—Cured.	14
69	M. Age, 30 yrs. Hand; erysipelatous; following slight scratch.	Poultice; needle puncture; poultice.—July 1877.—Cured.	6
70	M. Age, 31 yrs. Hand; several small abscesses; general inflammatory condition of hand.	Fomentation; needle puncture; poultice.—November 1878.—Cured.	6
71	F. Age, 31 yrs. Mammary; after parturition.	Fomentation; poultice. December 18, 1879.—Cured.	18
72	M. Age, 31 yrs. In region of anus; stout man; no history of ill health; chill sitting on damp seat.	Poultice; incision; lotion.—April 28 to May 2, 1878.—Cured.	4
73	M. Age, 32 yrs. Hand; small abscesses forming one after another; subsequent to making <i>post-mortem</i> examination.	Incisions made chiefly during inflammatory stage; poultice.—August 1879.—Cured.	6

74	F.	Age, 32 yrs.	Mammary; after parturition.	Fomentation; incision; sloughing of large piece of skin and cellular tissue.—December 1880 to January 1881.—Cured.	30
75	M.	Age, 33 yrs.	Hand; erysipelas; following injury.	Incision.—December 1880.—Cured.	5
76	F.	Age, 33 yrs.	Mammary; after parturition.	Fomentation; deep puncture.—January 9 to 30, 1882.—Cured.	21
77	M.	Age, 34 yrs.	Cervical; suppuration of long standing enlarged gland.	Iodine; incision.—July 1879.—Cured.	3
78	F.	Age, 34 yrs.	Cervical; enlarged cervical glands and old cicatrices; old roots of teeth in lower jaw; much suppuration.	Minute puncture; pressure; re-accumulation of pus; re-puncture at superior part.—June 30 to July 1881.—Not cured.	28
79	M.	Age, 34 yrs.	Region of anus; history of a chills.	Poultice; incision.—April 1881.—Cured.	6
80	F.	Age, 35 yrs.	Cervical; system low; derangement of stomach and bowels; rheumatic taint.	Poultice; incision; drainage.—January 2 to 21, 1882.—Cured.	19
81	F.	Age, 36 yrs.	Mammary; after parturition.	Poultice; fomentation.—March 1877.—Cured.	10
82	M.	Age, 37 yrs.	Region of anus; history of constipation.	Incision.—December 1872.—Cured.	2
83	F.	Age, 38 yrs.	Cervical; glands of neck all enlarged.	Camphorated zinc ointment; incision; iodine; tonics and cod-liver oil internally.—March 10, 1882.—Cured.	14
84	M.	Age, 38 yrs.	Testicle; hydrocele on a previous occasion, which was punctured twice; thereafter thickening and hardening of testicle; strumous family.	Incision; removal of cast-off cellular tissues; syringing with carbolic lotion.—January 1878.—Died.	15
85	F.	Age, 38 yrs.	Whitlow; said to have followed washing in which a great deal of coarse soda had been used.	Poultice; incision; removal of dead bone.—June 1882.—Cured.	14
86	M.	Age, 39 yrs.	Hand; said to have followed prick of needle when sewing dark dyed cloth.	Incision; poultice; lotion.—March 1882.—Cured.	10
87	M.	Age, 37 yrs.	Region of anus; had abscesses same place before; chronic bronchitis.	Poultice; incision.—October 1874.—Cured.	14
88	M.	Age, 40 yrs.	Hand; said to have been poisoned working among old wood; erysipelas.	Free incision back and front; syringing with carbolic acid lotion.—July 1872.—Cured.	15
89	M.	Age, 40 yrs.	Whitlow; said to have followed working among copper.	Incision; removal of dead bone; carbolic oil.—December 1876.—Cured.	21
90	M.	Age, 40 yrs.	Side of nose; implicating nasal bone; history of long standing; no history of syphilis.	Puncture; wound closed by first intention; re-accumulation of pus; re-puncture; bone found diseased.—Dec. 3, 1880.—Not cured.	3

No.	Sex, Age, Position and Nature of Abscess.	Treatment, Date, Result.	Days.
91	M. Age, 42 yrs. Elbow; anterior aspect, tumour; posterior aspect, enlarged; painful.	Aspiration; wound closed by first intention; accumulation; aspiration repeated twice; re-accumulation; incision; bone found diseased.—October 26, 1879, to April 1880.—Not cured.	156
92	F. Age, 42 yrs. Front part of thigh; following injury from omnibus wheel passing over leg.	Small incision; drainage; carbolic oil dressing.—August 21 to September 8, 1879.—Cured.	18
93	M. Age, 47 yrs. Hip; deep cellular tissue; patient has had locomotor ataxy for one year; spontaneous appearance of abscess.	Free incision.—November 1881.—Cured.	12
94	M. Age, 47 yrs. Pharynx; inflammation of tonsil; sea-faring man; following exposure.	Scarification; chlorate of potash gargle; tinct. belladonnæ and sodæ biborat. internally; gangrene of tissues occurring; tonics and sulphurous acid spray.—March to April, 1880.—Cured.	14
95	F. Age, 48 yrs. Whitlow; said to have followed cleaning house with a scratch on finger.	Incision.—November 16, 1882.—Cured.	7
96	F. Age, 49 yrs. Whole forearm involved; erysipelas; following cut by broken glass.	Free incision back and front; removal of pieces of cellular tissue; carbolic acid lotion.—December 31, 1879, to February 5, 1880.—Cured.	36
97	M. Age, 52 yrs. Over ribs on left side; due to injury inflicted by penknife.	Incision; deep cavity formed, not penetrating however to pleura; distension with carbolic lotion; injection of blistering fluid.—October 1875.—Cured.	21
98	F. Age, 54 yrs. Thyroid gland; previously enlarged thyroid; painted with iodine, &c.; abscess caused by injection of iodine.	Poultice only; ulceration; gangrene; use of disinfectant lotions.—January 10 to November 5, 1878.—Died.	295
99	M. Age, 63 yrs. Hip; deep cellular tissue; no cause assigned.	Incision; poultice.—December 1876.—Cured.	13
100	M. Age, 75 yrs. Cervical; glands all over neck; sub-maxillary and axillary all enlarged; said to have followed extra exertion at bowling.	Incision; injection of zinc and chloral lotion; boracic acid; zinc ointment; administration of tonics, quinine, iron; gland after gland suppurated; poulticing.—April 2 to August 5, 1881.—Cured.	123

REMARKS.

1. The parents of this child were young and healthy. The child was taken about a great deal in the cold, and very little care taken of the arm at first.

2. The mother of this child was troubled for a long time with eczema; the father, so far as known to me, was very healthy. The child suffered very greatly—seemed in constant pain, and had almost continual opisthotonos. It was treated with iodide of potassium internally; and, very much to my astonishment, it recovered. In September, 1882, five months fully after its recovery, it died of convulsions, probably due to some cerebral lesion. It was never vaccinated.

3. Parents of this child in robust health; child itself strong and healthy looking.

4. In the case of female children one is always very anxious, if possible, to secure the healing of an abscess in any prominent position without leaving a scar; and this is an example of one of the ways by which such an object may be secured. If the skin be in any degree thinned over an abscess, one may be sure that any incision through it will either cause ulceration of more or less of the skin tissue or leave a central adhesion. I therefore prefer to puncture the abscess either at its superior or inferior parts through the sound tissues, and a little careful pressure easily empties it. A pad carefully applied will then generally cause adhesion of the whole skin; but, if the pus should re-collect, I repeat the operation.

5. The mother of this child is a ruddy-faced, healthy young woman. She has never been troubled with eczema or skin disease herself, and neither has her husband. She has had two children, and both have suffered very severely from eczema capitis et faciei while at the breast. Taking the child off the breast gave no good result.

6. Father very healthy; mother troubled much with asthma. Grandfather, on the mother's side, has heart disease, but never was a day ill till over 50. Grandmother ruddy, fresh, and young looking, complains only of shortness of breath. Child suffered at the age of four months from an attack of bronchitis; present attack supposed to be due to sitting on damp stones on the roadside. The abscess appeared to have been gathering for several days before I saw him. On incision the abscess discharged at once and healed up.

7. This child was in a pitiable condition. Ill fed, ill clothed,

ill tended. Parents poor and miserable. Incision did not seem to give any relief—poulticing seemed best.

8. Healthy parents. Plenty of good food and warm clothing. No history of constipation. No assignable cause.

9. Healthy parents; no cause assigned. Gland had been enlarged and painless for some time; increasing in size it became tender on pressure and gave pain on walking. It was then poulticed, and when fluctuation was detected it was incised. From the day of incision till it healed six days elapsed.

Zinc or mercurial ointment, with camphor, has frequently a wonderful effect in dispersing enlarged glands. After scarlet fever, however, the use of the mercurial is often speedily followed by salivation, and requires much care. Excision of enlarged glands is quite uncalled for in the majority of cases, and in those where I have done so the result has not been uniformly good. Incision of glands in the stage of inflammation is not very useful or advisable. The pain is frequently not relieved, and the gland goes on to suppuration. Most relief is obtained from poulticing followed by incision in the suppurative stage.

10. Parents of this child tall, well made, healthy; mother subject, however, to mammary abscess. Child was said to have got a fall from a chair in the end of 1876. Since that time there had been pain on pressure over the hip joint, and pain worse at night. Fomentations and laudanum were applied externally with very temporary benefit. No fluctuation was discoverable, but there was characteristic pain in the knee. The long splint was applied in the month of January, 1877, with great benefit; but the pain still increasing, after a little the splint was taken off and a very thorough examination made, and deep fluctuation in the hip detected. An incision was made through skin and cellular tissue and muscle, and widened by opening out a pair of ordinary dressing forceps. A large quantity of pus was lodged beneath the gluteal muscles. The wound was kept open by a tent which was removed daily, and the cavity syringed freely with carbolic acid lotion. On the front of the leg, however, was another collection of pus. An incision was made here, and the same treatment adopted. The limb was supported the whole time on the long splint. This was a most anxious and troublesome case; but at ten weeks' end one had the satisfaction of seeing the wounds closed and the little patient free from pain. In 1879 she walked with only a perceptible halt, and there was a difference in length between the two legs of half-an-inch.

11. Parents both healthy; mother addicted to drink and careless of her children. Patient's head scabby; had been ill fed for some time; subject to suppurative otitis and inflammation of tonsils which are chronically enlarged.

12. Careless mother; fed her children chiefly on tea and bread; no porridge, hardly any milk, seldom any soup. Child's head scabby; had to cut off all her hair.

13. Parents both tall and strong looking; mother subject to mammary abscess; other children in the family have knock-knee, talipes varus; none of them has any glandular affection. This child fell from the stair window on her head, a height of about four feet. She had been playing with other children, and after falling she cried a little, said she was dizzy, and sat down on the stair. When she was taken into the house she was sick and vomited, and was put in bed. When I saw her she was speaking incoherently; the side of her head was tender to pressure, and there was some effusion under the scalp. I gave her calomel and applied spirit lotion to the head. The skin of the head became very hot and the hair was clipped off. The effusion now felt soft and boggy, and had the usual appearance of abscess. I applied cold lotion, ammonium chloride in water, and in the course of three weeks from the beginning had the satisfaction of seeing the complete disappearance of the fluid without any detriment to the general health.

Perhaps this might be classed as doubtfully an abscess; but I have no doubt that had I incised I would have discharged dark coloured fluid, the product of traumatic effusion, which, under more unfavourable circumstances, would have become suppurative. I note this case chiefly, however, for the purpose of remarking on the treatment, as one can readily understand that, if local inflammation be subdued and absorption encouraged, large quantities of effusion may be caused to disappear without doing harm to the system generally. It is a question of importance, however, how far this absorption of fluid may take place without injury. Occasionally, as has been demonstrated, the absorption of even a very small quantity of suppurative material has led to fatal results. The practical conclusion to be deduced is, that when an effusion is due to some traumatic cause, and the skin has not become inflamed (thus showing suppurative changes beneath), the proper treatment is to endeavour to procure absorption, and if this should fail, to adopt one of the usual methods of treating abscess.

14. Parents of this child both unhealthy. Father died four years ago from phthisis. Mother has died recently (1881) after having had excision of the breast performed. The dis-

case did not recur in the breast, but seemed to have appeared in the thigh of the right leg, where, at any rate, a tumour appeared in the upper third. Spontaneous fracture took place at this situation when she was turning in bed; pulmonary symptoms developed by which she was carried off.

Child dark, rough haired, and pale skinned, and had at the age of two a suppurating gland at the elbow joint. At present there is a small broken-down gland at the inner aspect of the arm, above the elbow joint. After incision and water dressing it healed immediately. One very decided cause of glands of this nature being tedious in healing is inefficient incision. The cut ought to be practically large, and the contents of the abscess squeezed effectually out.

15. This was a very sad case. The parents were careless, dirty, and poor. The house untidy and dirty. The child had not been cared for till serious symptoms appeared. The skin was desquamating when seen. There was a large fully suppurated abscess on the right side of the neck; the skin was blue, and shining over. The incision was small; the skin sloughed. Carbolic acid lotion was used externally; tonics and nourishment were given. Exhaustion, consequent on gangrene, which spread over the whole side of the neck, put an end to her life about eleven days after having been seen for the first time, and twenty-one days from the commencement, so far as could be learned, of the fever.

16. The parents of this child, both under 30, are in fair health. The father is very short-sighted; the mother is pale, and looks ill nourished, but she complains of nothing. This remarkable case was seen by me for the first time on the 8th April, 1882. She was then suffering from a low form of typhoid fever, and had pain in the belly on pressure, more especially over the middle, about the umbilicus. She was pale and thin, and murmured incessantly. Under ordinary treatment these symptoms were subdued, and she got well enough to sit up. The fever had abated, and malt extract and tonics were given internally. Her bowels were only slightly costive, and were moved almost every day. After this she slowly became worse, and a swelling appeared about the umbilicus. This increased, and discharged through the umbilicus a large quantity of pus, shreds of omental tissue, and fæces. An incision through the umbilicus had no good result, as the body of the abscess penetrated through the umbilical opening. This opening was therefore simply forcibly dilated, and a further large quantity of mixed fæces and pus discharged. The bowels still acted almost daily. No progress

was made with the case; the child was astonishingly emaciated, and yet hung on to what seemed the last threads of life. I therefore opened up the abdomen by a considerable incision, under the hope of being able to remedy matters radically. I found adhesion of the obliterated umbilical vessels to the posterior surface of the wall of the belly, and an extraordinarily vascular peritoneum. With great difficulty the bowel at this point was separated from the surrounding adhesions. There was perforation of the bowel opening into an abscess cavity, the walls of which were composed, so far as the changed nature of the structures would allow one to determine, of omentum and peritoneum. I drew the wound in the bowel together with silk suture, sponged the abscess cavity carefully out, and closed the external wound with silver wire sutures. This operation was done on the 10th of June, and the following day the bowels, which had not discharged *per anum* for several days, acted naturally. All seemed well; no fever; return of appetite; sleeping more; murmuring less; abdominal wound nearly healed. On the 21st of June fæces appeared between two of the upper stitches. In a day or two the adhesions were all broken down; the silver ulcerated through. I cut them out, and left a large opening into the belly, showing a cavity extending into the pelvis full of pus and fæces. The bowels were all out of sight, covered by a thickened and vascular peritoneum. The wound was left open, the cavity was syringed gently out, and cleaned as far as possible. Neither septicæmia, nor pyæmia, nor peritonitis occurred. Light dressings of carbolised cotton were used. Daily the pelvic cavity was full of fæces, and the case became a very terrible one to attend. The child appeared neither to lose nor gain in strength; took her food well; occasionally slept well; but as may well be imagined, the stench, in spite of disinfectants and aromatics, was very bad. Her breath, urine, and sweat all gave out the faecal odour.

On the 3rd of July I again explored the interior of the abdomen in search of other perforations of the bowel. I endeavoured to turn them out of the abdominal cavity, but found this impossible, and had therefore to be content with a very limited survey. I found another larger perforation than the last, which I stitched together with continuous silk suture. The abdominal (wall) wound was then closed as carefully as before. After a day or two, during which everything seemed to be going on well, the same state of affairs appeared, and fæces were also found in the urine.

This last occurrence gave me the idea that if free passage were established in the perineal region for the fæces which accumulated constantly in the pelvic and abdominal cavity, the wound in the abdominal walls might be got to heal. On the 19th of July, having put her under chloroform with the intention of making an opening through Douglas' pouch, I found the following condition of affairs. The bladder was perforated at its superior part, and fæces were found inside. One's little finger could pass through the opening. I therefore made no further opening, but passed a tube (an india rubber tube) from the abdominal cavity, through the bladder and through the urethra, which was easily dilated sufficiently with the finger.

The patient suffered neither more nor less after this procedure. The tube remained patent and through it were discharged urine and fæces. On the 23rd of July she died.

Many suggestions occur to one in thinking over this case. I may as well state here, that in the *post-mortem* examination, during which the intestines were unravelled with great difficulty, no less than 23 perforations were found in the smaller intestines, so that one need hardly wonder at the failure of operative procedure to check the discharge of fæces into the abdominal cavity, or to give any permanent relief. A case similar to this has not occurred to me before; nor do I think such cases can be common. I do not think that the various operations which this child underwent had any great influence either in prolonging her life or shortening it.

17. Parents both healthy. Mother very nervous. One of the children has infantile paralysis. Grandparents on both sides living till recently, when father's mother died from traumatic erysipelas of the head. Mother has brother with spine disease. Patient has not been taking her food well for some time; has long hours at school for her age. Had shivering and was feverish, after which glandular abscess developed on back of neck. After incision no drainage. Application of lotion:—

R	Zinci sulphatis,	.	.	.	.	gr. xxx.
	Chloral hydrat.,	.	.	.	.	gr. xl.
	Aq. ad	.	.	.	.	fl. ʒ viij. M.

This lotion I find very effectual in relieving pain, and ordinary abscesses heal up under it as quickly as with carbolic lotion.

18. Neglected case. Child poorly fed. I have noted the number of days under treatment as four. Of course, the

course of the abscess must have been longer than this. The abscesses were fully gathered when I saw them; the skin cold and discoloured. After incision no sign of healing took place; the skin began to ulcerate, leaving hard edges of tissue. I sponged this freely over with pernitrate of iron, gave tonics, and the healing process immediately set in.

19. This was a long standing case of hip-joint disease. Parents both dead—had died of some chest affection. Child had abscesses all over hip, below Poupert's ligament, on front of thigh. Incisions made in February, 1881. Discharges continued till March, 1882, when patient died from exhaustion.

20. Parents both delicate. Father died of phthisis. Mother has cough. Patient is covered with scars of former abscesses. The feet, over the metacarpal bones, are swollen, and pieces of bone have been discharged. The tibiae and the femora have also thrown off sequestra, and are bent and thickened. On incision the skin has no tendency to heal. Blistering has no good effect. This patient has been under observation from 1878 till now, 1882, and is neither improving nor getting much worse.

21. This is an ordinary case of glandular abscess after scarlet fever. It needed practically no attention, and healed up immediately after incision with one day's drainage.

22. A very neglected case. The boy had been struck on the back of the hand with a miner's pick. The skin was not cut; the whole hand was painful and swollen. A long course of fomentation with the decoction of a variety of herbs was ordered by an unqualified man and very faithfully carried out. When I saw him the whole back of the hand was covered by a large tumour formed by the distended skin. A small incision was made and the abscess completely emptied. A pad was placed over the skin and the hand firmly bandaged. In two days the wound was found closed and the sac partly filled with fluid. An incision was made again and the hand examined with a probe. Diseased metacarpal bone was found. The further treatment of this case was not carried out by me; but I know it became a very tedious one and required excision of the metacarpal bone.

24. Father of this girl not strong; troubled with hæmorrhage from the bowels. Other members of the family troubled with chest complaint; one little brother has talipes varus. Mother is a delicate looking woman, but makes no complaint. Abscess over patient's elbow joint, red, shining, painful; arm cannot be moved without great suffering. On 2nd October this was incised under spray and antiseptic dressings used.

The bone was found bare. Antiseptic dressing under spray was kept up for two months. Cod liver oil and Parrish's syrup were given internally. The wound never healed, and I had ultimately to excise the diseased bones.

26. Parents of this child not strong. There has been a swelling in the middle of his back over the spinous processes for a considerable time. He has been in failing health, but has always kept up his spirits. He is pale and weak looking. Aspiration was performed, and the tumour emptied completely of nearly ten ounces of creamy looking thick pus. The aspiration puncture was covered with a piece of silk plaster. Examination of the back, after excavation of the pus, discovered a loose spinous process, attached evidently by ligamentous tissue only to the spine. The fluid collected again and was aspirated on the 14th, giving exit to about seven ounces of flaky pus. A third aspiration was performed in about a fortnight more, and four ounces of ill smelling pus taken away. The aspiration puncture after this did not heal. A small incision was made, drainage established, and syringing with carbolic acid lotion. This case must be set down as not cured, since further operative measures were necessary with regard to the diseased spinous process, and no cure was effected till removal of the diseased bone.

27. Father of this child a strong healthy man; mother healthy till the beginning of 1882, when she lost the sight of the right eye by glaucoma fulminans. The other members of the family suffer from chest complaint. One daughter has phthisis. This child's head was covered with scabs; she was poor and thin, had no appetite; had been shivering and feverish. Incision at the most dependent part of the abscess and warm poulticing for two days thoroughly cleaned out the abscess. Under carbolic acid lotion the wound healed immediately.

28. Child of delicate father who died of phthisis. Chain of cervical glands below ear suppurated; skin over several has already ulcerated, leaving subcutaneous tissue exposed, raw, and red. There was great fear that there would be indelible and unsightly scars. However, to prevent as many as possible I punctured the lowest abscess and pushed the knife (a tenotomy knife) from below upwards through other two abscesses, and inserted a long thin drainage tube. The ulcerated portions I painted with solution of pernitrate of iron, and in the course of a fortnight had the satisfaction of seeing the abscesses heal without scar or discolouration; and the ulcerated portions rapidly covering with dermal tissue. At the present time (Dec. 1882), there is almost no scar at all visible.

32. The father of this child is said to have died from some chest affection; his mother is a careless woman, addicted to drink. The child's neck is surrounded by chains of enlarged and suppurating glands. His face is completely out of shape by the size of the glands and cicatrices of skin about the maxillary region. Incision, poultice, lotion, antiseptics (Listerism), painting with iodine, and almost every variety of treatment has been adopted without success. Abscesses have formed about the gums, implicating the alveolar processes, and fully one fourth part of the alveolar process of the lower jaw on the right side has been thrown off. At present, three years after having begun treatment, he is in much the same condition with regard to the glands; but he is bigger and stronger. He is going on with tonics and cod liver oil.

35. Mother of this boy not eighteen years of age when he was born. Father twenty years older. Mother has been subject to epilepsy ever since she was married. Grandmother on the mother's side subject to bronchitis, and has had whitlow of the thumb, leading to loss of part of it. A sister of the patient has crooked legs and swollen glands about the neck. The patient's trouble began in 1878, up till which time he had been a healthy, stirring boy. At first he complained of not being able to walk without hurting his foot. By and bye the ankle swelled and was fomented and poulticed, and various means were adopted to relieve the pain. Amongst other things leeching was tried with little benefit. By and bye fluctuation was discovered, and an incision was made with all the Listerian precautions. It was evident there was diseased bone. No progress was made with the case; the wound continued to discharge and the ankle to enlarge, and continued nearly as painful as ever. This is properly the end of the case as an abscess; but I may add here that subsequently the diseased bones were gouged out, continuing the antiseptic (Listerian) treatment; and although for a short time I cherished hope of a cure I was disappointed, and had to amputate the foot (Syme's amputation). But even this was not the end of it, for the stump never healing, amputation farther up the limb had ultimately to be performed.

This was a most melancholy although instructive case, for the patient appears again in Nos. 39, 40, and 43, both arms and both knees being subsequently affected by abscesses that either originated in bone or affected them. These abscesses were treated in divers manners: some were aspirated, some punctured, some freely opened, and some poulticed. The general result was the same by all methods—viz., a continual

discharge of pus and no healing of the wound. During the whole time over which the treatment has extended, from the beginning of 1879 till now, he has been fed on the most nourishing diet possible, and has taken cod liver oil, iron, and various other tonics. At present (1882) his condition is deplorable. He has strumous discharging disease of both knees, shoulder joints, wrists, and elbows, and is unable to use either hand. If the use of the word "incurable" were ever justifiable it might be used here.

38. The child of healthy parents; both careful and attentive. There is no history of an injury, and he does not look like one subject to acute abscesses. There is a statement as to a considerable time having elapsed since the swelling was first discovered. In July 1879 the abscess was opened, and dressed antiseptically with drainage. Large quantities of pus drained away, so as to saturate the dressings in a very short time. The wound never showed the slightest sign of healing. The cavity was freely syringed with carbolic acid lotion, with apparent benefit, but this was so slight, and the quantity of diseased bone so great, that further surgical interference was desirable. Here, again, this history should end, since the abscess itself was not the primary disease, but only the indication of a graver trouble; but I desire to note, for purposes of future comparison, that removal of the diseased rib did not end in the desired result of a closed wound; the boy was dismissed, when he went from my care to the North, with a large sinus, certainly not discharging so much as formerly, but evidently contracting and healing with great reluctance.

45. The father of this patient had died young; cause of death unknown to me, but supposed to have been some chest affection. Her mother is not a strong woman. She has always taken great care of her children. The patient is a fair skinned, slim, and tall girl. She had good health up till the time she menstruated, about a year ago, and since then she has never been well. (Edematous swelling of the legs and feet comes on whenever she has been going about for some time.

The present attack commenced with what appeared an ordinary sore throat, congested tonsils, with painful deglutition and ear ache. Poultices were applied externally round the neck and jaws, and a gargle of chlorate of potash and tincture mur. ferri used. This gave no relief, and I scarified both tonsils. This discharged a little blood, but relieved neither the congestion nor pain. Inhalation of steam and sulphurous acid vapour was then used, and the sulphurous

acid was also used as a spray. Deglutition was now impossible, and I made a free incision into the right tonsil, giving vent to a little dark blood. Hyoseyamus and belladonna were given internally. Black patches now appeared on the tonsil, and the breath, which had already been offensive, acquired a quite insupportable odour. She could take no nourishment whatever; the body became covered with petechial spots, and she died exhausted in the end of May, sixty days from the beginning of the trouble.

50. This young woman, the daughter of a delicate mother and a healthy father, has suffered from childhood with suppurating glands of the neck and jaws. She was under treatment the whole of 1880 and 1881. Some of the glands were scraped out with Volkmann's spoon; others incised, and antiseptic treatment adopted; others, again, were poulticed. None of these methods of treatment was satisfactory; the result from the scraping, which virtually was excision, certainly did not repay the trouble, nor give a better scar. She is still (1882) taking cod liver oil and tonics, and continues very much in the same condition.

53. Father died in early life; mother is a florid stout woman, subject to hæmorrhages from the bowels and vagina (she is 47 years of age), and asthma. The patient is a tall, strong looking girl. She has complained for some time of great pain in her head, and as it was supposed to be associated with some decayed teeth, three were extracted. No relief was obtained, and tincture of gelseminum was then taken with great benefit. A flow of pus now took place, evidently from the socket of one of the teeth in the upper jaw, and a tumour appeared in the roof of the mouth. This was incised, and gave vent to some stinking pus, which afforded almost complete relief. Astringent gargles and washes were then used. Patient was giddy for a long time, could not walk steadily, and fell down occasionally. She had to be taken great care of. All these symptoms, pain, and the discharge of pus wore gradually away, and she was able to get about safely at the end of the second month. Now (1882) there is no trace of the complaint, except a hard bulging into the buccal cavity from the roof of the mouth.

64. Patient subject to mammary abscess, and I therefore felt very anxious either to forestall the indications or to devise the quickest means of cure. There was pain when the child went to the breast, and a hard circumscribed lump was detected on the left of the nipple on the right breast. This was painful to pressure. It lay deep. I passed a long thin

knife into it, and immediately let out a considerable quantity of milky looking pus. There was no further trouble with it. It healed immediately, and did not interfere with the use of the breast.

65. A strong healthy young man; bubo the result of syphilitic taint. The gland was very much enlarged and painful, and he could not walk. I froze the tissues over the gland daily for one week by means of Richardson's ether spray. This gave him considerable relief from pain, but neither brought about absorption nor hastened suppuration. I then applied mercurial ointment and warm poultices with the speedy production of fluctuation. I then incised freely and gave antisymphilitic treatment, and the wound very quickly healed. I note this as one of the examples of the use of the spray, not as an anæsthetic, but as an aid to causing increased vascular action in the part and bringing about either absorption or suppuration. In this case the result was *nil*.

91. This is an example of failure of aspiration. The operation was done three times, and had evidently not the slightest influence in curing the abscess. Diseased bone was found, and no progress was made with the case—the man steadily losing flesh and getting weaker day by day till amputation above the elbow was performed.

98. This patient was under my care for nearly a year; but she had already received treatment for a slightly enlarged thyroid gland. It had been painted with iodine, and iodide of potassium had been administered internally. It went on slowly increasing in size without much pain, and when I saw it on 10th January, 1878, it was about the size of a hen's egg. It was enlarged chiefly on the right side. It had a hard nodulated feeling. I advised excision, which was not done, as at various consultations there was no agreement. The same line of treatment was pursued as already indicated, together with the administration of opiates and sedatives for pain and breathlessness which were becoming very troublesome. Ultimately it seemed to be softening in various parts, and fluctuation was detected. It was supposed to be suppurating, and tincture of iodine was injected. The consequences, or perhaps only the subsequent events, were sufficiently alarming. The skin ulcerated off, and a deep gangrenous ulcer was exposed. The gangrene spread rapidly, and a very few days put a period to her suffering. The carotids were laid bare on both sides, but were not cut through. Death seemed to be the result of exhaustion.

This case is noted as an abscess, although, to my mind, all

the indications point to malignant disease of the thyroid, with ultimate softening and necrosis of the whole gland. I would be very chary of asserting that the iodine injected was the cause of the gangrene. But neither would I expect to have a cure if it had been a *bona fide* abscess, actually pus, and not the debris of a malignant tumour. If the abscess be first emptied and the cavity syringed or wiped over with tincture of iodine, we might reasonably look for some benefit. But we could not expect benefit in a morbid tissue which had already so far lost its vitality as to be breaking down.

100. This patient was a healthy old man, troubled with few complaints for his time of life. When I saw him first, one of the cervical glands at the root of the neck was in an acute state of suppuration. I incised it and dressed it with zinc and chloral lotion. The wound did not heal, and a neighbouring gland, which was already enlarged, began to inflame, be painful, and then suppurated. This was poulticed, and discharged of itself. The wound did not heal up. Gradually the glands under the arm, under the clavicle, on the breast, and on the back of the neck, enlarged, inflamed, and suppurated. Carbolic acid lotion had no effect. Ointments were applied at his own request. An operation was proposed to thoroughly open all the abscesses and treat them antiseptically, but declined. His general health was very much broken down; in fact, so ill was he that it was suggested that it was malignant disease of the glands. Quinine and iron were given, and one by one the glands slowly healed up. It was evidently degeneration of the glands and their disappearance by suppuration. At this stage he got an ointment from an unqualified man, who gained all the credit of the cure. The ointment was a resinous ointment. At present I might say he is quite recovered. There are the scars of the abscesses, but there is no discharge whatever.

ANALYTICAL TABLES AND REMARKS.

The percentages of Table I indicate that abscesses occur mostly in early life, 54 per cent of them being before 21 years of age, 21 per cent occur up till and including the age of 7, 23 per cent from 7 till 14, and 10 per cent from 14 till 21, 13 per cent from 21 till 28, 13 per cent from 28 till 35, 12 per cent from 35 till 42, 6 per cent from 42 till 63. The period from 7 till 14 years of age may thus be regarded as that during which abscess is the most likely to occur, and this may

be accounted for in various ways. The whole system is at that time in a greater state of activity of growth and change; and morbid processes, as well as vital, may reasonably be imagined to have greater force also.

I.—TABLE SHOWING NUMBER OF CASES OF ABSCESSSES AT EACH YEAR OF LIFE.

Age. No. of Cases.	Age. No. of Cases.	Age. No. of Cases.
1 year. 2	21 years, 1	42 years, 2
2 " 4	22 " 3	47 " 2
3 " 2	24 " 2	48 " 1
4 " 1	25 " 1	49 " 1
5 " 1	26 " 4	52 " 1
6 " 6	28 " 2	54 " 1
7 " 5	29 " 1	
9 " 4	30 " 1	
10 " 7	31 " 3	63 years, 1
11 " 1	32 " 2	75 " 1
12 " 5	33 " 2	
13 " 1	34 " 3	
14 " 5	35 " 1	
15 " 1	36 " 1	First 20 years, 54
16 " 2	37 " 1	Second 20 years, 36
17 " 3	38 " 3	Third 20 years, 8
18 " 1	39 " 2	Fourth 20 years, 2
19 " 2	40 " 3	
20 " 1		

Table II.—Abscesses about the head and neck form 30 per cent. Of these 25 per cent occur up to the age of 22, leaving only 5 per cent for the remaining years. Under head and neck I have tabulated all the lateral and posterior cervical glands, sub-maxillary glands and abscesses in other parts of the head, as in the scalp. I found it impossible to do otherwise than slump them together in some manageable manner. Abscesses in the region of the anus follow next in frequency, but form only 9 per cent. These include all cases in the perinæum that may have been only simple abscesses or the indication of some grave disease, as complications with the bowel, ending so frequently in fistula. Abscesses of the breast follow next in frequency, forming 8 per cent. Abscesses of the hip, 6 per cent, are formed of either simple cellular tissue abscesses or those complicated with hip-joint disease. Those in the groin may be either glandular or the indications of psoas abscess. Abscesses in the axilla are generally glandular.

II.—TABLE SHOWING SITUATION OF ABSCESS, AGE AND SEX OF PATIENT.

Head and Neck.		Mamma.		Region of Anus.		Region of Hip.		Groin.		Axilla.	
Age.	Sex.	Age.	Sex.	Age.	Sex.	Age.	Sex.	Age.	Sex.	Age.	Sex.
1	M.	26	F.	2	M.	5	F.	4	F.	$\frac{1}{2}$	F.
$1\frac{1}{2}$	M.	26	F.	3	F.	7	M.	18	M.	25	F.
2	F.	28	F.	$14\frac{1}{2}$	M.	9	M.	22	M.	...	
2	F.	29	F.	16	M.	12	M.	24	M.	...	
3	F.	31	F.	21	F.	47	M.	26	M.	...	
6	F.	32	F.	31	M.	63	M.	...		...
6	F.	33	F.	34	M.	...		...		...
6	F.	36	F.	37	M.	...		...		...
6	F.	...		39	M.	...		...		...
7	F.	...		...		...		...		...
7	M.	...		...		...		...		...
7	F.	...		...		...		...		...
9	F.	...		...		...		...		...
10	F.	...		...		...		...		...
10	F.	...		...		...		...		...
10	M.	...		...		...		...		...
10	F.	...		...		...		...		...
10	M.	...		...		...		...		...
10	M.	...		...		...		...		...
12	M.	...		...		...		...		...
16	F.	...		...		...		...		...
17	F.	...		...		...		...		...
19	F.	...		...		...		...		...
22	F.	...		...		...		...		...
22	F.	...		...		...		...		...
34	M.	...		...		...		...		...
34	F.	...		...		...		...		...
35	F.	...		...		...		...		...
38	F.	...		...		...		...		...
75	M.	...		...		...		...		...
30 M.	F.	8 M.	F.	9 M.	F.	6 M.	F.	5 M.	F.	2 M.	F.
9	21	—	8	7	2	5	1	4	1	—	2

III.—TABLE SHOWING SITUATION OF ABSCESS, SEX, AND AGE OF PATIENT.

Mouth.		Pharynx.		Tonsil.		Ear.		Nose.		Spine.		Chest.	
Age.	Sex.	Age.	Sex.	Age.	Sex.	Age.	Sex.	Age.	Sex.	Age.	Sex.	Age.	Sex.
19	F.	28	M.	15	F.	11	F.	40	M.	10	M.	12	F.
20	M.	47	M.	26	M.	...		...		...		$12\frac{1}{2}$	M.
...		...		...		...		...		...		52	M.
2 M.	F.	2 M.	F.	2 M.	F.	1 M.	F.	1 M.	F.	1 M.	F.	3 M.	F.
1	1	2	—	1	1	—	1	1	—	1	—	2	1

IV.

Abdomen.			Thyroid.		Testicle.		Vulva.	
Age.	Sex.		Age.	Sex.	Age.	Sex.	Age.	Sex.
6	F.		54	F.	17	M.	24	F.
...	...		...	...	38	M.	...	...
1	M.	F.	1	M.	F.	2	M.	F.
	—	1		—	1	2	—	1

Tables III and IV might very properly be denominated miscellaneous abscesses. They form 17 per cent of the whole, presenting no uniformity of either cause or cure; each one requires to be considered separately. In the remarks attached to the cases most of these will be found more fully narrated.

V.

Leg.		Knee.		Ankle.		Foot.		Arm.		Elbow.		Hand.	
Age.	Sex.	Age.	Sex.	Age.	Sex.	Age.	Sex.	Age.	Sex.	Age.	Sex.	Age.	Sex.
7	F.	14	M.	12	M.	14	M.	13	M.	6	F.	9	M.
42	F.	14½	M.	...		14	M.	49	F.	9	F.	30	M.
...		17	F.	...		...		...		42	M.	31	M.
...		...		...		...		...		...		32	M.
...		...		...		...		...		...		33	M.
...		...		...		...		...		...		38	F.
...		...		...		...		...		...		39	M.
...		...		...		...		...		...		40	M.
...		...		...		...		...		...		40	M.
...		...		...		...		...		...		48	F.
2	M. F.	3	M. F.	1	M. F.	2	M. F.	2	M. F.	3	M. F.	10	M. F.
— 2		2 1		1 —		2 —		1 1		1 2		8 2	

Table V represents, along with simple abscesses, those which are the indications of bone disease. In Table II the divisions of the hip and groin are also associated with bone disease; and in Table III the ear, the nose, the spine, and the chest. We have thus a very useful division of abscesses according to the tissue or part affected, *e. g.*:—

1. Abscesses connected with separate glands or with the

glandular system. *a.* Simple abscesses; *b.* abscesses the indication of lymphatic disease.

2. Abscesses connected with organs, as the tonsil, the liver.

3. Abscesses connected with cellular tissue. *a.* Simple; *b.* indicative.

No one will ever make much progress in the treatment of abscess unless he really act on their natural division (whether glandular, cellular, or whatever tissue may be affected) into simple and indicative, the one requiring for cure a vastly different treatment from the other.

VI.—TABLE SHOWING PROPORTION OF MALES AND FEMALES AFFECTED.

SITUATION.	M.	F.	SITUATION.	M.	F.	SITUATION.	M.	F.
Head & Neck,	9	21	Mouth, . .	1	1	Leg, . . .	...	2
Mamma, . .	...	8	Pharynx, . .	2	...	Knee, . . .	2	1
Anus, . . .	7	2	Tonsil, . . .	1	1	Ankle, . . .	1	...
Hip, . . .	5	1	Ear, . . .	...	1	Foot, . . .	2	...
Groin, . . .	4	1	Nose, . . .	1	...	Arm, . . .	1	1
Axilla, . . .	...	2	Spine, . . .	1	...	Elbow, . . .	1	2
			Chest, . . .	2	1	Hand, . . .	8	2
	25	35		8	4		15	8

SITUATION.	M.	F.
Abdomen, . .	...	1
Thyroid, . .	...	1
Testicle, . .	2	...
Vulva, . . .	...	1
	2	3

TOTALS.

M.	F.
25	35
2	3
8	4
15	8
50	50

In abscesses of the head and neck we find 21 females affected to 9 males. In abscess about the anus, 7 males to 2 females. The proportion is thus reversed. In abscess of the hip and groin, both simple and indicative, we find 9 males to 2 females. In abscess of the breast we find 8 females and no males. One may very reasonably here draw the conclusion, then, that the upper part of the body in the female sex is more prone to be the seat of abscess, and the lower part of the body in the male sex—and part of the reason at least lies on the surface. When we come to consider abscess in the hand, and find 8 male to 2 female cases, we at once perceive the difference between the general modes of life of the two

sexes, since the hands of men are necessarily more liable to injury than those of women.

Taken altogether we find that the percentage is the same—50 per cent of each. I cannot help remarking that this, to my mind, is a remarkable incident, as I could not have anticipated such close percentages when I began to compile these tables.

VII.—TABLE SHOWING NUMBER OF DAYS UNDER TREATMENT OF THOSE WHO RECOVERED.

No.	Sex.	Age	Abscess.	Days.	No.	Sex.	Age	Abscess.	Days.
54	M.	20	Mouth.	1	46	F.	16	Cervical.	10
8	F.	3	Anal.	2	81	F.	36	Mammary.	10
21	F.	7	Cervical.	2	86	M.	39	Hand.	10
31	M.	10	Cervical.	2	51	M.	18	Bubo.	11
37	M.	12	Cervical.	2	99	M.	63	Hip.	13
59	F.	24	Vulva.	2	93	M.	47	Hip.	12
82	M.	37	Anal.	2	12	F.	6	Cervical.	14
14	F.	6	Elbow.	3	28	F.	10	Cervical.	14
27	F.	10	Cervical.	3	62	M.	26	Tonsil.	14
30	F.	10	Cervical.	3	63	F.	26	Mammary.	14
33	F.	11	Cervical.	3	68	F.	29	Mammary.	14
42	M.	14	Foot.	3	83	F.	38	Cervical.	14
66	M.	28	Pharynx.	3	85	F.	38	Hand.	14
77	M.	34	Cervical.	3	87	M.	39	Anal.	14
17	F.	7	Cervical.	4	94	M.	47	Pharynx.	14
18	F.	7	Leg.	4	88	M.	40	Hand.	15
44	M.	14½	Anal.	4	48	F.	17	Knee.	17
72	M.	31	Anal.	4	71	F.	31	Mammary.	18
6	M.	2	Anal.	5	92	F.	42	Leg.	18
11	F.	6	Cervical.	5	80	F.	35	Cervical.	19
55	F.	21	Anal.	5	13	F.	6	Cervical.	21
75	M.	3	Hand.	5	22	M.	9	Hand.	21
3	M.	1½	Cervical.	6	76	F.	33	Mammary.	21
9	F.	4	Bubo.	6	34	F.	12	Supra-Clavie.	21
25	F.	9	Cervical.	6	52	F.	19	Cervical.	21
58	M.	22	Bubo.	6	89	M.	40	Hand.	21
69	M.	30	Hand.	6	97	M.	52	Rib.	21
70	M.	31	Hand.	6	60	M.	24	Bubo.	27
73	M.	32	Hand.	6	65	M.	26	Bubo.	27
79	M.	34	Anus.	6	79	F.	32	Mammary.	30
1	F.		Axillary.	7	96	F.	49	Arm.	36
95	F.	48	Hand.	7	2	M.	1	Cervical.	56
5	F.	2	Cervical.	8	36	M.	12	Hip.	60
61	F.	25	Axillary.	8	53	F.	19	Mouth.	60
64	F.	26	Mammary.	8	10	F.	5	Hip.	71
67	F.	28	Mammary.	8	41	M.	14	Foot.	90
4	F.	2	Cervical.	10	100	M.	75	Cervical.	123

The number of days under treatment must not be taken to mean duration of disease, as, of course, in some instances the disease had been going on a long time before I saw the patient, and continued some time after I had left off attendance. It means the time under my care; and, of course, if the time mentioned is short, it may be understood that everything was in such a satisfactory condition that further surgical attendance was unnecessary.

The total number of those really cured is 74. I mean by this not dismissed as well enough, but when every vestige of the disease is gone, and only a scar, if a scar at all, is left. The total number of those not cured is 18. Incurable is not a very appropriate term, although it is one that rises very readily to one's lips when we have laboured away unavailingly for any length of time at an extreme case. I have frequently seen, as every one must have seen, cases denominated incurable quite recovered through time; and, therefore, I think the most judicious phrase to use is, not cured.

The smallest number of days is of course appropriated to those simple abscesses, single suppurating glands or tonsils, or ordinary traumatic abscess. The longest period, however, is that of the old man, No. 100, whose whole glandular system seemed involved, his case lasting for the long period of 123 days.

Abscess connected with bone, as in the hip and foot, are necessarily tedious, as also mammary abscess involving various portions of the gland.

VIII.—TABLE SHOWING NUMBER OF CASES ON SAME NUMBER OF DAYS.

No.	Days.	No.	Days.	No.	Days.	No.	Days.
1	1	4	8	1	17	1	56
6	2	4	10	2	18	2	60
7	3	1	11	1	19	1	71
4	4	1	12	7	21	1	90
4	5	1	13	2	27	1	123
8	6	9	14	1	30		
2	7	1	15	1	36		

TABLE SHOWING THE PROPORTION BY WEEK.

32 from 1 to 7 days.
 20 from 7 to 14 days.
 12 from 14 to 21 days.
 10 from 3 weeks to 17 weeks.

Table VIII gives a good *résumé* of the average duration of abscesses, fifty-two having run their course, and been cured within fourteen days. Other twelve took from fourteen to twenty-one days. So that we may say that the ordinary duration of abscess is from one to three weeks. If it should run longer than this, we very likely will have a tedious cure going on to perhaps seventeen weeks, or being relegated into the *not cured*.

From two to twenty-one days seems a very short time to determine a case as not cured; but various circumstances compelled my own attendance to be limited to that number of days. The treatment in all these cases has been carried on for months at home, and in the majority of instances I have every reason to believe was as faithfully carried out as it could be. Every one knows that home treatment for wounds, abscesses, and sores is at all times little short of maltreatment, and such cases can never be satisfactorily carried to a termination unless under the eye and hand of the surgeon himself. In fact, such cases make him a real worker with his hands.

IX.—TABLE SHOWING NUMBER OF DAYS UNDER TREATMENT OF THOSE NOT CURED.

No.	Sex.	Age.	Abscess.	Days.	No.	Sex.	Age.	Abscess.	Days.
56	F.	22	Cervical, . .	2	38	M.	12½	Rib, . . .	60
57	F.	22	Cervical, . .	2	39	M.	13	Arm, . . .	60
29	M.	10	Cervical, . .	3	20	M.	7	Cervical, . .	89
90	M.	40	Nose, . . .	3	43	M.	14½	Knee, . . .	90
50	F.	17	Cervical, . .	14	24	F.	9	Elbow, . . .	91
26	M.	10	Spine, . . .	21	91	M.	42	Elbow, . . .	156
78	F.	34	Cervical, . .	28	35	M.	12	Ankle, . . .	300
49	M.	17	Testicle, . .	30	40	M.	14	Knee, . . .	300
23	M.	8	Hip, . . .	60	32	M.	10	Cervical, . .	3 yrs.

There are eighteen cases uncured, and of these ten were associated with diseased bone. It is plain, then, that the abscess itself was not the disease, but was only the indication of other disease which demanded more radical treatment. Of the remaining eight, seven were cervical, and were the manifestations of extensive lymphatic disease. While surgical treatment may be of great service in the former kind of indicative abscess, it is very doubtful if any surgical treatment, however radical, would have a permanent influence on the latter. At any rate, the precise form of the surgical interference is at present wanting, and the surgeon in such cases will best

consult his own credit and the patient's benefit by adopting medical treatment suitable to his case.

X.—TABLE SHOWING NUMBER OF DAYS UNDER TREATMENT OF THOSE WHO DIED.

No.	Sex.	Age.	Abscess.	Days.	No.	Sex.	Age.	Abscess.	Days.
47	M.	16	Anal, . . .	11	45	F.	15	Tonsil, . . .	60
84	M.	38	Testicle, . .	15	16	F.	6	Abdomen, . .	77
15	F.	6	Cervical, . .	21	98	F.	54	Thyroid gland	295
7	F.	3	Cervical, . .	28	19	M.	7	Hip, . . .	300

Eight cases died: only one with bone disease, six with glandular disease, and one with fistula in ano. One can thus see that while bone disease admits of further successful radical operation (*vide* Table XI), and is not necessarily fatal, extensive glandular disease is a very fatal thing, and, according to my experience, ends life in a very terrible manner. *Vide* Table XI.

XI.—TABLE SHOWING THE AGE, SEX, AND PRESENT CONDITION OF PATIENTS NOT CURED (1882).

No.	Age	CONDITION.	M. F.	REMARKS.
20	7	Diseased long bones, legs, arms, glands, .	1 ...	No further surgical interference, tonics and cod liver oil.
23	8	Diseased hip joint, suppurating, .	1 ...	No surgical interference, rest and tonics.
24	9	Diseased articulating end of ulna, . . .	... 1	Cured by excision of end of bone.
26	10	Diseased spinous process, .	1 ...	No further surgical interference.
29	10	Suppurating cervical glands, .	1 ...	Tonics and cod liver oil.
32	10	"	1 ...	"
35	12	Disorganised ankle joint, .	1 ...	Amputation of foot, disease recurred in stump.
38	12½	Diseased ribs,	1 ...	Excision of ribs, wound not closed after one year.
39	13	Disorganised elbow joint, .	1 ...	No surgical interference, tonics.
40	14	Disorganised knee joint, .	1 ...	" " "
43	14½	"	1 ...	" " "
49	17	General health broken down, .	1 ...	Tonics.
50	17	Suppurating & ulcerating glands, .	... 1	Tonics and cod liver oil.
56	22	Chain of glands, suppurating, .	... 1	" "
57	22	Chain of glands, inflaming and suppurating, . . . .	... 1	" "
78	34	Chain of glands, suppurating, .	... 1	" "
90	40	Diseased bone,	1 ...	" "
91	42	Diseased elbow joint, . . .	1 ...	Amputation above elbow, cure.
			13 5	

Two out of these eighteen—24 and 91, were restored to complete health by excision and amputation. These were cases of diseased bone. In the remaining cases no further surgical interference has been attempted. Tonics and fresh air, and the natural growth of those who are young, may restore some of them; but in any case this will be a work of time.

XII.—TABLE SHOWING AGE, SEX, AND CAUSE OF DEATH IN THOSE WHO DIED.

No.	Age	CAUSE OF DEATH.	M. F.	REMARKS.
7	3	Exhaustion, - - -	... 1	
15	6	Gangrene; exhaustion, - -	... 1	After scarlet fever; no recovery.
16	6	Ulceration of bowels, - -	... 1	After typhoid fever.
45	15	Gangrene of pharynx, - -	... 1	In failing health since menstruation began, at 13½ years.
19	7	Exhaustion from hip and spine disease, - - -	1 ...	Ill for over a year; probably for 3 years.
47	16	Phthisis, - - -	1 ...	Fistula in ano.
84	38	Bright's disease, - - -	1 ...	In ill health for three years previous.
98	54	Gangrene; exhaustion, - -	... 1	
			3 5	

XIII.—SUMMARY OF CASES.

	M.	F.	Totals.
Cured, . . .	34	40	74
Not Cured, . .	13	5	18
Died, . . .	3	5	8
	50	50	100

Of the whole number of cases now recorded, sixteen had osseous disease, and the abscess was only the outcome or manifestation of this complaint. These numbers are—10, 19, 20, 22, 23, 24, 26, 35, 36, 38, 39, 40, 43, 89, 90, and 91. Again, fifteen of the remainder had some serious glandular degeneration or other trouble affecting other than the osseous tissues. These cases were more fatal than those. The numbers of this class are—2, 7, 15, 16, 29, 41, 45, 47, 49, 50, 56, 57, 84, 98, 100. The remainder, sixty-nine in number, were properly cases of simple abscess, involving, perhaps, only one gland, or a limited portion of other tissue—*e.g.*, cellular tissue. This makes a percentage of thirty-one serious cases, and points out the fact that abscess is not such a small matter, but is a disease of great importance.

In concluding this essay, I will put down in order the

deductions that can naturally be drawn from these clinical histories and tables.

1. The early years of life are those in which abscesses are most common.

2. Both sexes are equally subject to abscesses.

3. The upper part of the body is the commonest site of abscesses in the female sex.

4. The lower part of the body is the commonest site in the male sex.

5. The parents of such as have suffered from severe abscesses are themselves (either one or both) phthisical or strumous.

6. The average duration of treatment of curable abscesses is two weeks.

7. Abscesses fall naturally into two divisions—*a.* Simple. *b.* Indicative.

8. Simple abscesses require little treatment; have a tendency to spontaneous cure.

9. Indicative abscesses require great attention; have no tendency to cure, but rather to become chronic.

10. Indicative abscesses indicate constitutional affection—*a.* Of the osseous system. *b.* Of the glandular system, or of the cellular or any tissue other than osseous.

11. The constitutional affection of the bones is the least fatal.

A CASE OF ACUTE PERI-HEPATITIS.

By J. WALLACE ANDERSON, M.D.,
Physician to the Royal Infirmary Dispensary.

A WELL marked example of this disease can hardly be mistaken, even when seen for the first time. The symptoms individually may not be at all distinctive; but, taken together, they will constitute quite an unequivocal picture. The following case, which was recently under my care in the Royal Infirmary, illustrates this, but I have thought it worth reporting chiefly because the disease itself is far from being a common one in our country.

W. F., æt. 28, window cleaner, admitted 10th August, 1883, complaining of severe pain in the right side of chest, of one week's duration.

Up to that time patient was quite well; but eight nights

ago, when in bed and asleep, he was suddenly seized with the pain in the side, accompanied by breathlessness, and after a time by a short cough also. He had to remain in bed next day, and has done so ever since. For some days he felt sick and feverish, but this has passed off now, although the pain continues to be as severe as ever. It is increased when patient takes a long breath, or coughs, or attempts to sit up in bed, or indeed if he moves off his back. Patient thinks his illness was brought on by perspiring very freely during the day and being exposed to the colder air at night; and on further inquiry it appears he has been drinking to such a degree that he cannot say to what extent he may have been so exposed. He has hitherto enjoyed excellent health, with the exception of a slight attack of jaundice which he had in Egypt, where he served as a soldier during the recent war.

His tongue is now moist and pretty clean. Appetite impaired. He feels very thirsty, and has a slight, dry, short cough, with very little expectoration. Complains of great pain on palpating over hepatic area, which appears to be somewhat enlarged. Temperature this morning (11th Aug.), 100.4° ; last night 101.6° .

For this history of the case I am mainly indebted to the report of Mr. Shaw, resident assistant. I saw the case on the following Monday:—

13th August.—Patient lies flat on his back, evidently afraid to move. His face does not indicate any acute fever; there is only an expression of anxiety, which is accounted for by his dread of the pain. This pain is not continuous, but is readily induced in a variety of ways, and when it does occur is very commanding. It is referred to the lower part of right chest, and presents some peculiar characters. A moderate or even a deep breath will not always cause it, or he may cough once or twice without feeling it, but a slight purposeless movement, or a somewhat fuller respiration suddenly, unexpectedly as it were, induces it. It has not the constant catching character of pleuritic pain, but it is quite as overpowering. Even the act of speaking will sometimes occasion it. There is the same uncertainty on palpation. He seems to bear a little pressure over the liver—a little more is made, or it is made in a somewhat different way, when suddenly there is the same commanding pain. Over the ribs the pressure must be so great as to move them; but, if made along and under the lower border of the chest, the slightest pressure causes pain. Even in right lumbar and in umbilical regions there is some pain on palpation,

as if the peritoneum were to a certain extent involved; but again the characteristic symptoms of acute general peritonitis are entirely wanting—the pain, on pressure, is not severe enough; it does not pass to the left side; there is no swelling of abdomen, and he lies, by preference, with the legs fully extended.

On percussion the liver is found to be decidedly enlarged. The upper limit of absolute dulness reaches to the nipple, and there is comparative dulness for an inch higher. The lower margin is about normal. The same enlargement upwards is found in lateral area, but further examination by percussion is not attempted on account of the pain which the slightest movement occasions. Auscultatory signs are entirely negative as regards any pulmonary affection. It should be added that, while he is afraid to move off his back, if once he does gain with assistance the sitting posture, he frequently feels decidedly easier. Pulse 90. Temperature last night 101.6° ; this morning 101.2° . Appetite is considerably impaired, but he has no nausea. Tongue coated; feels rather thirsty. No trace of jaundice.

14th August.—Temperature last night was 102.2° ; this morning 101.6° . Feels slightly easier, but the pain, on pressure, over hepatic area, is still very great. Slept better last night than he has done since illness began.

17th August.—Temperature this morning 98.8° ; yesterday morning 99.8° . Pain on pressure over the liver is diminishing, and there is very little now in abdomen, but he has always some pain even when lying perfectly at rest. It is worse in the morning, and prevents him falling asleep as soon as he would otherwise do.

20th August.—Pain continues to diminish. He winces when firm pressure is made over liver, but the pain is not of the commanding character previously noticed. Morning temperature is now normal; in the evening it is one degree higher.

21st August.—Patient says he is much better this morning. He still prefers to be on his back, but can turn on to his left side if he first partially sits up. He cannot lie on right side. The slight cough which he had is now gone. His appetite, which has never been, except at first, greatly impaired, is now improved. Pulse 60; temperature normal.

22nd August.—Last night about 8 o'clock he perspired very freely. Has done so more or less every night lately, but never to the same degree. He felt cold afterwards, but had no shivering. Temperature last night 100.6° ; this morning 99.2° .

23rd August.—Patient continues to improve. Firm pressure over the liver causes him now comparatively little pain. He still perspires pretty freely at night, but has had nothing approaching a rigor. Temperature last night 99·8°; this morning 99·2°. The hepatic area is now distinctly less than it was. The upper margin of liver coincides with level of nipple, and that of absolute dulness is an inch lower. The lower margin is about an inch higher than it was on 13th August. He can now lie perfectly well on his left side, but only for a short time on right side. Just under the costal arch, in mammary line, is the only point where he feels some pain on pressure; but there is still a dull pain felt in the evening, which yields towards midnight, and he falls asleep. During the day he is able to go about the ward, and feels quite well.

From this time the patient rapidly gained strength and only complained of the slight pain in the evening when I gave up my attendance in Professor Charteris' ward.

It is needless to go into the question of diagnosis in detail. The case is easily separable from intercostal neuralgia, pneumonia, biliary calculi, or peritonitis. Nor had it the aspect of a well marked pleurisy at any stage. There was not, as regards pain; that constant quick response to the act of inspiration which characterises acute pleurisy in its early stage. It was rather some accidental movement or pressure over the ribs, gradually increased till apparently the liver was touched, that caused the sudden over-mastering pain. And there was no symptom at any period of his illness that pointed to the pleura rather than the liver. Nor could we call the case one of simple congestion of the liver, however vague and comprehensive the term is. If by active congestion is meant a form of disease common enough in our country, indicated by fulness or weight, rather than pain, in the region of the liver, by nausea, coated tongue, jaundice—all, as a rule, well-marked, then it was clearly not that.

I have called it peri-hepatitis rather than hepatitis, from the degree of pain experienced, though it is not likely the inflammation would be confined to the surface of the organ. And undoubtedly there would be at least some congestion of the liver as a whole, as the amount of enlargement clearly showed.

The case illustrates a well recognised etiology, residence in a tropical country, and alcoholic intemperance. The treatment was practically careful poulticing, and a flannel binder to support the chest.

REVIEWS.

Quain's Elements of Anatomy. Edited by ALLEN THOMSON, M.D., F.R.S.; EDWARD SCHÄFER, F.R.S.; and GEORGE DANCER THANE. In two volumes. Ninth edition. Longmans, Green & Co. 1882.

First Notice.

FOR many years past each new edition of *Quain's Anatomy* has been produced by a new editorial staff, the chief editor and director, Dr. Allen Thomson, being, however, constant and unchangeable. The present edition is an exception to the rule only in respect to the part taken by Dr. Thomson, for, in consequence of his retiral from immediate anatomical teaching, he has only undertaken the responsibility of revising his treatise on embryology—the descriptive anatomy having undergone revision at the hands of Mr. G. D. Thane, Professor of Anatomy at University College; and the histology and anatomy of the viscera, brain, and organs of sense being the work of Mr. Schäfer. While fully admitting the competence of these gentlemen to perform the task taken up by them, we cannot but regret that a work which has so long been associated with the Glasgow school should cease to have any connection with it, especially as we are sure that the local anatomists engaged in the production of former editions were quite able for the work.

In the first volume the changes are not striking, so that a casual observer would not notice what is, however, the case, that almost every page has undergone some revision. That the additions are somewhat numerous may be gathered from the fact that this volume extends to 707 pages, the last edition having only 643, this increase in the number of pages being accompanied by a reduction in the number of diagrams, giving an additional increment of letterpress space.

One very noteworthy addition is a long and rather discursive section on superficial and topographical anatomy, from the pen of Mr. R. J. Godlee. The descriptions given by Holden in his "Landmarks" are, for the most part, followed, but we miss the charm of Holden's lucid and graphic style. We can commend, in this section especially, the description of the relation of abdominal and thoracic viscera to the back, including as it does an accurate account of the topographic relations of the aorta, lungs, and spinal cord; matters of

much interest, both to the physician and surgeon, and hitherto insufficiently defined in our text-books.

The description of the bones, though in some respects improved, still falls short of anything like perfection. This has always appeared to us the most defective part of this classic work, and experience has shown that students who rely on it alone rarely attain to an accurate knowledge of osteology. Mr. Thane has adopted Flower's method of taking skull measurements, and gives a not very clear description of it in several pages of small print. The method is cumbersome in the extreme, and while aiming at accuracy, fails to give a satisfactory comparison of the peculiarities of different races; in the latter respect it is no worse, however, than the score or so of other methods which have been devised.

We are not sure that the change of name of one of the carpal bones, from "cuneiform" to "pyramidal," is likely to be generally adopted, or is indeed at all called for; it is undoubtedly true that the old name gives a wrong conception of the shape of the bone; but in this respect the new name is not much better, and it is all too late in the day to attempt a revision of our anatomical nomenclature. Are we to discard the term "artery," because we now know vessels of that class are not "air carriers"?

The description of the joints is notably defective in regard to the identification of the bursæ associated with each articulation. As these have latterly come to receive much attention in their relation to joint disease, it is unfortunate that they are herein so generally ignored. Mr. Thane prefers the term "pivot joint" to "trochoides," although the latter is adopted by Mr. Morris in his work on the joints. The articulation of the ring of the atlas with the odontoid process of the axis, and the upper joint between the radius and ulna, are so peculiar as to require a special title for their description, and of the two, that suggested by Mr. Thane is certainly the more intelligible.

The section on the muscles has undergone very little change. The varieties have been further elaborated, and the account of the pelvic fascia has been entirely re-written, and is now illustrated by two original diagrams from the pencil of the editor. The description of the layers of this fascia is simplified, although rendered less accurate, by the exclusion of both *anal* and *rectal* fasciæ, the former being considered as part of the perineal fascia, and the latter being altogether omitted. We prefer not only to consider these as portions of the pelvic fascia, but to include also the deep

layer of the triangular ligament, which clearly is continuous with the obturator fascia. We commend Cunningham's description to the attention of the editors of *Quain*, not only as giving an accurate detail of facts, but as a model of clear definition they would do well to copy.

The most notable change in the first volume is undoubtedly the introduction of coloured plates of the arteries and veins. These give an attractive appearance to the work, and may possibly tend to accelerate the sale, but can scarcely be looked upon as artistically a success; indeed, in most cases the great mass of colour tends to obscure the rest of the engraving, and to detract from the merit of the very excellent old woodcuts which have so long adorned this section.

Quain's Anatomy has always held the first place among anatomical works in this country, and taking it all in all, we doubt if it has its superior in any country or in any language. It has in its successive editions been kept well abreast of the scientific knowledge of the day, and remains a monument of deep research, accurate observation, and literary skill. It has, in later editions, got beyond the requirements of the average medical student, and to him its perusal proves only a weary and unprofitable task, tending to render insecure and uncertain what little knowledge he possesses; but to the teacher it is a valuable work of reference, and it is indispensable to all who wish to know the science of anatomy in its depth and fulness.

The International Encyclopædia of Surgery. Edited by JOHN ASHHURST, Jun., M.D., Professor of Clinical Surgery in the University of Pennsylvania. In six volumes. Volume III. London: Macmillan & Co. 1883.

OF the three volumes which have up to the present appeared, this, so far as the contributors are concerned, is distinctly more "International" in character. Thus, of the seven articles which compose the book, four are by Americans, two by Englishmen, and one by a Frenchman.

As with the preceding two volumes, we shall give a cursory review of each article.

Injuries and Diseases of the Muscles, Tendons, and Fasciæ, by P. S. Conner, M.D., Professor of Anatomy and Clinical Surgery in the Medical College of Ohio, Cincinnati; Professor of Surgery in the Dartmouth Medical College, &c. In a few pages the author has concisely considered the

affections of these structures. Under the head of Chronic Teno-Synovitis occurs a statement to which some might take exception. It is as follows:—"There seems to be good reason for believing that in some cases of Fungous Arthritis, the disease has originated in the synovial sheaths of tendons crossing the joint." It is a point worth noticing, as directing attention to one possible cause of Pulp disease of joints and the advisability of early treatment.

Injuries and Surgical Diseases of the Lymphatics, by Edward Bellamy, F.R.C.S., Fellow of King's College, London; Surgeon to the Charing Cross Hospital; Member of the Board of Examiners, Royal College of Surgeons, England. Mr. Bellamy's contribution, like its predecessor, short and concise, is a valuable one. Besides numerous appended references, a bibliography of the relation of cancer to the lymphatic system is given, and thus what space prevents from being inserted the reader has the opportunity of otherwise more fully investigating. It is much to be regretted other authors have not adopted a similar course, and thereby rendered possible the additional and important advantage of reference.

Injuries of Blood Vessels, by John A. Lidell, A.M., M.D., late Surgeon to Bellevue Hospital; also late Surgeon, U.S. Volunteers; in charge of Stanton U.S. Army General Hospital; Inspector of the Medical and Hospital Department of the Army of the Potomac, &c. This is a most exhaustive disquisition upon the subject, and would form a perfect treatise of itself. The amount of labour expended in the collection of illustrative cases, as well as in the selective and comparative arrangement of statistics, gives a completeness to the article, hardly perhaps to be exceeded in any other discussion of the subject. Some three hundred pages are occupied, and the great length is principally due to the number of cases reported. They add considerable interest, and are therefore in no way objectionable. It would, however, have been possible to have curtailed the length to some extent. Thus, many of the operations for securing vessels are given under the particular kind of injuries to them, and they are then found repeated under the special head of "Deligation of Arteries." A simple reference would have been amply sufficient.

A few special points may be noticed. Under the head of "Treatment of Surgical Hæmorrhage," we find the author strongly deprecating the use of iron salts to all wounds, except where the bleeding is parenchymatous, and occurring externally. The two most prominent reasons for its non-

use are—first, the hard insoluble coagulum which it forms interferes with the healing of all deep wounds; and second, the coagulating action is not instantaneous, but requires about thirty seconds for its completion; so that, if any solution of Ferric Chlorid be applied to a part from which the blood is flowing freely, its styptic influence cannot be exerted upon the vessels themselves from which the blood escapes. Of the various kinds of ligatures mentioned, to those of Lister is the most decided preference given. Under this same division of the subject a very ingenious little instrument, invented by Dr. Speirs, is figured and described. Space forbids anything beyond a passing reference; but, as something novel in the method of occluding arteries, this little instrument, known as Speirs' Artery Constrictor, is worthy of being looked up.

Ligature of the external carotid is not an operation much in vogue in this country; but Dr. Lidell speaks of the uniform success which has attended ligatures of both vessels for hæmorrhage occurring from their internal branches.

Under the head of Deligation of Arteries will be found figured what is called an Improved Aneurism Needle. It certainly seems to possess one considerable advantage over the ordinary needle, inasmuch as the ligature can be passed with the least possible disturbance of the parts immediately around the vessel. In shape it resembles much the ordinary needle, but instead of being in one piece the straight portion can be unscrewed and separated from the curved; so that, when threaded and passed under the vessel, the handle is rotated and withdrawn, while the curved portion carrying the ligature is pulled out on the opposite side to which it was entered.

Surgical Diseases of the Vascular System, by John A. Wyeth, M.D., Professor of Surgery in the New York Polyclinic; Surgeon to Mount Sinai Hospital, New York. The earlier part of this article is almost entirely pathological, and the author borrows freely from the work of Cornil and Ranvier. There is little that appears new or original, the subject being principally an exposition of the various views of different authors. The latter part is devoted to vascular tumours, and cannot be deemed a very lucid and complete rendering of the subject. Contrary to the usual teaching concerning the ligation of arteries, the author is convinced by experience that the simple occlusion of a vessel by only moderately constricting it is safer than the division of one or two coats by a tightly drawn ligature.

Aneurism, by Richard Barwell, F.R.C.S., Surgeon to Charing Cross Hospital, London. This is a most exhaustive discussion on the subject, and while it may be said to contain almost all that has been done and written in reference to it, suffers here and there from undue prolixity and lack of conciseness. After treating the subject generally, the author passes on to discuss the special seats of aneurism and its various symptoms and modes of treatment. Under each kind are given statistics, showing by results the relative value of each method of cure. Hence, this part of the article is extremely valuable from the great service it will render as a source of reference, and its practical utility will be a sufficient recompense for the labour expended in compilation.

The conventional administration of iodides the author objects to, for the following reason, best stated in his own words:—"I cannot but think that the very rapid relapse and quick progress of the disease which overtakes many aneurismal patients, who at first seemed to derive benefit from the rest and the iodine, is often due to a non-coagulating condition of the blood produced by large doses of this drug."

On the subject of ligatures, while extolling Mr. Lister's recent chromic acid preparations, Mr. Barwell much prefers what he originally introduced, ligatures prepared from ox aorta. His arguments in its favour are—firstly, that being flat it tends simply to occlude the vessel without dividing the two inner coats; and, secondly, that it becomes organised instead of absorbed: two facts which he maintains are favourable towards the prevention of secondary hæmorrhage.

This article could have been very advantageously shortened by referring to, instead of describing, the various operations of ligation fully given in a preceding article.

Injuries and Diseases of Nerves, by M. Nicaise, M.D., Professor "Agrége" in the Faculty of Medicine of Paris; Surgeon to the Hospital, Paris. This article will be found of greater pathological and physiological interest than surgical. The literature of the subject is well worked up, and thus Dr. Nicaise's contribution, like its predecessor, will prove of great service for reference.

Injuries of Joints, by Edmund Andrews, M.D., LL.D., Professor of Clinical Surgery in the Chicago Medical College; Surgeon to Mercy Hospital, Chicago. There is little to say about this article. The subject is dealt with clearly and systematically, but the illustrations are, with few exceptions, very bad.

Concerning the work as a whole, so far as bulk is concerned,

this volume in no way falls short of its predecessors, but as regards the quality of its contents it does not compare so favourably. There is a considerable repetition in some of the articles, and the articles themselves overlap. The latter defect is alluded to in the editor's preface, and excused on the ground of rendering each article more complete in itself. A reference, however, would have sufficiently answered all purposes. Where can be the possible advantage of giving no fewer than three times the operations for ligation of vessels?

There is a considerable scarcity of illustrations, but the subjects are not such as to necessitate their introduction. On the whole, this volume may fairly rank as a valuable book of reference in all matters pertaining to the subjects treated, and particularly to those dealing with Aneurism and Injuries to Blood Vessels.

Auscultation and Percussion, together with the other methods of Physical examination of the Chest. By SAMUEL GEE, M.D. Third edition. London: Smith, Elder & Co. 1883.

It is unnecessary to say much in regard to Dr. Gee's work, which has been before the profession for the past thirteen years. The fact that it has reached a third edition, while other new and more comprehensive works on physical diagnosis have been issuing from the press, proves that it has acquired and maintains a sound reputation as a text-book. The present edition has been largely re-written, but the facts remain with such additions as have been suggested by the wider experience of the author and other observers. The revision of the book has been carefully done, and has resulted in increased clearness of expression.

REPORTS OF HOSPITAL AND PRIVATE PRACTICE.

WESTERN INFIRMARY.

REPORTS UNDER THE SUPERVISION OF J. LINDSAY STEVEN, M.B.

FROM THE PATHOLOGICAL DEPARTMENT.

TWO CASES OF MOVABLE KIDNEY. [Reported by J. Lindsay Steven, M.B.]—As the subject of displacements of the kidney is

at present bulking somewhat largely in the pages of the *Journal*, I think it is, perhaps, right to report shortly two cases of the kind which came under observation in the *post-mortem* room here, and which I brought under the notice of the Glasgow Pathological and Clinical Society last session. In what follows I shall simply describe the condition of the affected organs without going into the details of the *post-mortem*, and, as in neither case was the condition suspected during life, I shall not consider the clinical history. In the first case the autopsy was performed by Dr. Coats, in the second by myself.

CASE I. The body was that of a woman, aged 58, and the following is Dr. Coats' account of the right kidney:—"On opening the abdomen the right kidney is found displaced towards the middle line. Its lower margin is situated near the middle of the vertebræ, while the proper upper margin is much posterior, the organ being nearly transverse in position, with the hilus looking upwards and inwards. In this position it forms a tumour just beneath the lower edge of the liver, immediately outside the level of the gall-bladder. From this position it may readily be displaced forwards until the middle of the organ is directly in the middle line, where it forms a very prominent tumour over the bodies of the vertebræ.

"On more particular examination of the relations of the right kidney it is found that the renal vein is very markedly short, and evidently on the stretch. It issues from the vena cava about an inch before the latter enters the liver. The renal vein itself is an inch and a-half in length. The renal artery springs in the normal way from the aorta, and is of the usual length."

CASE II. The body was that of a woman, aged 32, unmarried, and without children.

On proceeding to examine the abdomen in this case the lower end of the right kidney was found projecting forwards quite through the intestines, so as to be visible without disturbing them. Upon seizing it, it was discovered to be freely movable in a radiating manner, the centre of movement corresponding to the attachment of the renal vessels, and that part of its internal border extending from them to its upper extremity. On turning aside the parts the supra-renal capsule was seen in its normal situation immediately beneath the posterior border of the liver, and, on letting the kidney fall back into its normal situation, it was found to lie quite an inch and a-half below the level of that organ. In the movements of the kidney the supra-renal capsule was not in the least affected, and that it was not at all dragged downwards

was proved by the fact that, on removing it along with the kidney and abdominal vessels, a small portion of the liver remained adhering to it. In this case there was quite evidently a partially formed renal mesentery, its line of attachment corresponding to the upper half of the internal border, and a small area of the upper portion of the posterior surface of the kidney—the movements of the lower part of the organ being thus much more free than those of the upper. There was no peritoneal sac in which the organ was moving, as the peritoneum was very firmly adherent to the organ all round, except at the part where the mesentery passed off to attach the kidney to the posterior abdominal wall.

Another peculiar coincidence in this case was that the duct of the gall-bladder was quite occluded by a large calculus, which had led to enormous dilatation of the organ.

Remarks.—The first of these cases, according to the classification adopted in Dr. Newman's recent paper, would be classed under the heading "Movable Kidney," and the second, probably at least, under that of "Floating Kidney." It is extremely difficult to arrive at any reliable opinion as to the cause of the condition in these cases. In the first of them the misplacement was probably congenital and dependent upon the shortness of the renal vein. With regard to the second case it is not so easy to form an opinion as to the etiology; but it is not likely, I think, to have been congenital. It is to be remarked, however, in this connection, that there was in this case the most indubitable evidence of long continued tight-lacing, the lower ribs having a very decided set inwards, and the stomach, which was much distended, showing a distinct indenture where its great curvature came in contact with the compressed ribs. Now, notwithstanding Dr. Newman's statement—"that tight-lacing might cause fixed misplacement, but, that movable kidney could result from it alone, is not admissible," I cannot help thinking that in the case just recorded tight-lacing was the cause—and very probably the only cause. The woman was unmarried and never had any children, and the deformities of other parts, produced by the tight-lacing, were extreme. One must remember that the compression of the waist by the corset is not a continuous, but an intermittent condition. If it were continuous one could see how ultimately the organ might be immovably fixed in a wrong position; but, as the compression of the corset is only kept up for, at the most, I suppose, 15 out of the 24 hours, it can only operate injuriously on the kidney during that time, as the organ will

tend to slip back into its normal position when the stays are taken off at night. In this way the organ may gradually not only become movable, but there is no reason why it should not gradually, by pushing the peritoneum before it, acquire more or less of a mesentery.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1882-83.

MEETING VIII.—4TH MAY, 1883.

DR. GAIRDNER, *President, in the Chair.*

DR. J. CRAWFORD RENTON read notes of a few SURGICAL CASES, including uterine myoma, removed by abdominal section; osteomyelitis of the femur, schirrus of the uterus, ruptured perinæum, with vesico-vaginal septum, and tracheotomy. See September Number of this *Journal*, p. 173.

Dr. Wm. L. Reid said that in regard to Chian turpentine he had used it a good deal some years ago, with the result that while the discharge for some time was diminished, there was no arrest in the progress of the disease. In regard to the case of myoma he objected to the operation, on the principle that it was not strictly necessary. The woman was about 35 years of age; there was no menorrhagic discharge; and he thought it more than doubtful whether, to relieve a feeling of discomfort, a surgeon was justified in subjecting a patient to the risks of an operation so hazardous.

Dr. M^cVail said that in uterine myoma the discharge was greatest at the monthly period; and he had known, in a severe case, the benefit of using very large doses of bromide, which had the power to paralyse the sexual function. The woman was near the change of life, and his object was to tide her over the period, with the hope that once over it the menorrhagia would cease. This was what actually occurred.

Dr. H. C. Cameron said that he must take exception to

a remark of Dr. Renton, that "the result justified the treatment." That he looked on as a surgical heresy. Dr. Keith, on an occasion not long ago, had said very justly that if you have to think twice before advising a patient to have ovariectomy done, you must think fifty times before recommending her to have a uterine tumour removed in this way. It was indeed evident that the number of such cases to be treated by abdominal section was very limited.

The President repeated a remark of the late Mr. Syme, who, speaking of the ovarian operation, to which he was then opposed, said that only did the result of an operation not justify it, but that it would be a misfortune were such an operation sometimes to be successful.

Dr. Renton said that the risks of the operation were fully explained to the patient; and she was greatly afraid that the surgeons would change their minds and decline to operate. The woman's life was a burden to her; and the result was to remove the constant feeling of misery.

DR. WILLIAM BAXTER, Crookedholm, Kilmarnock, read ON A CASE OF ULCER OF THE DUODENUM following A BURN.

The President said that when he looked into the literature of the subject he could not find the record of any distinct case of ulcer of the duodenum ending in recovery. It must be kept in view, however, that practitioners living at a distance from hospitals may sometimes distrust their own powers of diagnosis and observation, and thus cases may remain undiscovered. It was only when a very pronounced symptom, like hæmorrhage from the bowels, occurred, that one would care to say that the diagnosis had been made out. That day he had come to learn of another case—not, however, ending in recovery—that of the wife of a well known literary character. She was subject to fits of an epileptiform kind, and in one of them fell into the fire. She recovered from the burn, but died with every symptom of perforation. He would like to know what Dr. Coats had to say on the pathology of these cases of ulceration of the duodenum.

Dr. Coats said that so far as he knew no satisfactory explanation of the pathology of these cases had been offered.

Dr. M'Vail said that at the beginning of the hæmorrhage from the bowels the blood in this case was said to be apparently venous, while later on it was like arterial blood. Now, in cases of hæmatemesis, it usually happened that the blood which came through the bowels, from its long passage

through the small intestines, was considerably altered in appearance, and had the character neither of venous nor arterial blood.

Dr. Cameron said that he had, many years ago, seen a case in the Royal Infirmary with hæmorrhage from the bowel, and other symptoms similar to those in *Dr. Baxter's* case. Whether it ended in recovery or not he did not know. He also knew of the case to which *Dr. Gairdner* referred. He did not know whether any cases of recovery had been published where hæmorrhage from the bowels had occurred. The scope of *Mr. Curling's* paper had reference to *post-mortem* appearances. With the greatest confidence in the antiseptic treatment, he could not, with *Dr. Baxter*, credit the recovery in this case with any great share in it. These cases of ulceration of the duodenum did not always ensue from severe burns. On the contrary, they sometimes occurred in sequence to comparatively mild burns; and the case of *Dr. Baxter's*, looked at merely as a burn, could not be called a severe case. A water dressing would probably have been equally effective. At all events, it was a case in which one would not have expected that the injury from the burn would *per se* have been expected to prove fatal.

Dr. Renton said that in regard to *Dr. Baxter's* distrust of the results of the injection of ergotine, he might state that he had used *Tanner's* solution of ergotine without any abscesses or irritation following.

Dr. J. Wallace Anderson had also said that he had also used *Tanner's* solution of ergotine with perfectly good results.

Dr. Morton said that the late *Dr. A. D. Anderson*, of Glasgow, was the first, or among the first, to use cotton on burns. The great principle in the treatment of burns was to allow the dressing to remain on as long as possible. In *Dr. Baxter's* case he was not sure but that the dressing was applied rather soon, and it was just possible that had he delayed, the gastro-intestinal affection might not have occurred. He agreed with *Dr. M'Vail* that the fact of the blood being unchanged made it somewhat doubtful where it came from.

Mr. Maylard said that it was, perhaps, premature to pronounce this case one of recovery, as in *Mr. Holmes'* case the fatal result did not occur till about three years after the injury.

Dr. Baxter said that while he agreed with *Dr. Cameron* as to the comparatively slight nature of the burn, which

made him give a too favourable prognosis, he differed from him as to the part played in the cure by the antiseptic treatment. That that treatment was an effective factor in the cure was impressed on him when he saw the effects, in this case, following a comparatively small loss of blood and, subsequently, the development of two small abscesses. As to the general treatment of burns, the application of cold water was an admirable treatment if the injury were limited and local; but it might cause counter shock if it involved a large part of the tegumentary surface. His treatment was at first by warm baths. For the shock of burns this was particularly effective. He kept the patients in water at 95° F. for about two hours.

M E D I C A L I T E M S .

UNDER THE DIRECTION OF

ALEX. NAPIER, M.D.

Kairin and Kairolin: new Antipyretics.—The first named of these bodies, an alkaloid lately built up synthetically by Dr. Otto Fischer, lecturer on chemistry in the University of Munich, seems to be one of the most important of the recent additions to the *materia medica*. It appears to be really an ideal antipyretic, controlling febrile temperatures without injuriously affecting the system in any way; its action is directed solely to the lessening of the production of heat.

Its chemical origin is interesting. Quinine, as is well known, is a derivative of chinolin, a circumstance which led to the employment of the latter as a substitute for the former. The large proportion of hydrogen present in quinine, together with the results of certain recent investigations, have led chemists to regard the quinine molecule not as based on chinolin simply, but on a *hydrated* chinolin. Starting, therefore, from hydrated chinolin, Drs. Fischer and Königs endeavoured to obtain, by synthetical means, other bodies having the antithermic properties of quinine. By hydration and oxidation processes, by the addition of methyl or methoxyl groups to the hydrated chinolin molecule, these gentlemen have succeeded in forming an extensive series of bodies, and their experiments are still directed to the same object. These bodies have been handed over to Prof. Filehne for examination; and thus, since

the beginning of 1881, have investigations been going on to determine the directions in which are to be sought chinolin derivatives having the desired antithermic properties. These long sought for bodies, having no local action, but having the power of reducing the temperature to the normal point, seem to have been found in those hydrated chinolin derivatives whose N-atom, besides its connection with two atoms of carbon in the chinolin formula, is united to the carbon of a methyl group or of another alcohol radical. One of these bodies is the oxychinolinmethyl-hydride of Fischer, named shortly *kairin*. Its formula is $C_{10}H_{13}NO$, that of chinolin being C_9H_7N .

When it had been recognised that the essential element in the process was the addition of methyl to the N-atom in the hydrated chinolin, the chinolinmethyl-hydride (*kairolin*) of Königs and Hoffmann, and the chinolinethyl-hydride of Wischnegradsky, were tried and also found to have antipyretic properties. Kairolin is built up in precisely the same way as kairin, except that one atom of H is replaced by HO. As the preparation in a pure state of both of these last mentioned substances is costly, as they are volatile and have an unpleasant taste, they have not been so much or so fully tried as kairin.

The *hydrochlorate of kairin* is a clear, crystalline, greyish-yellow powder, readily soluble in water, and having a salt-bitter or somewhat aromatic taste. To some its taste is pleasant; to others it is very unpleasant, necessitating the administration of the powder in wafers. Water should be drunk freely after the powder, especially if the drug is not absolutely pure. This substance has been tried in a series of acute and chronic febrile diseases (typhoid fever, acute articular rheumatism, septicæmia, tuberculosis, acute pneumonia), in Prof. Leube's clinic, and in all its antithermic action was found to be constant.

As regards dose, it is stated that in *healthy* adults doses of 1-1.5 grammes have no physiological action and no effect on the temperature; further, they produce no unpleasant effects, such as headache, ringing in the ears, sickness, &c. In adult patients, or in debilitated subjects, the dose of 1 gramme every two hours is not to be exceeded, otherwise a certain degree of cyanosis is apt to occur. In adult fever cases the most suitable dose is 0.3-0.5 gramme every hour or hour and a-half. The interval between doses of 1 gramme should not exceed $2\frac{1}{2}$ hours; between doses of 0.5 gramme it should never be more than $1\frac{1}{2}$ or 2 hours. To obtain a less pronounced effect the

doses should be reduced, not the interval. The effect of a 1 gramme dose lasts no longer than 3 hours, that of 0.5 gramme not longer than $2\frac{1}{4}$ hours; and when the influence of the drug is exhausted the temperature again rises, with a feeling of chilliness amounting sometimes to actual rigor. A dose of less than 0.3 gramme, given at once, has practically no effect on the temperature. A dose of 0.3 to 0.5, or 1 gramme, lowers the temperature distinctly, by $\frac{1}{2}$ to 2° C.; if another dose be given before the action of the former dose is over the temperature falls still farther; and if the dose be increased to 0.5 gramme hourly it invariably follows, and without any injurious effect, that after the fourth dose, sometimes after the third, or even the second, the temperature falls to the normal point, or even below it. Lower than 37° - 36.5° C. (98.6° - 97.7° F.), the temperature cannot be brought, even by continuing the administration of the medicine energetically. The action of the drug begins about 25 minutes after a dose of 0.5-1 gramme is taken by the mouth; its action by hypodermic or rectal injections was not tried. The fall in temperature is more rapid the larger the dose. It is always accompanied by profuse sweating, and this lasts only so long as the temperature continues to fall, and no longer. When the temperature becomes normal or sub-normal, or when it has reached its lowest point in the individual case (it is possible, for example, by means of small doses frequently repeated, to bring the temperature, say from 40° C. to a constant level of 39° or 38.5° C.), that is usually after 2-4 doses have been given, the sweating ceases, and the temperature remains at its new level without further sweating—so long, of course, as the administration of the kairin is continued. These facts, and the absence of sweating when the drug is given to healthy individuals, show that the fall in temperature is not secondary to the sweating, but that the latter occurs because the organism, so influenced by the action of the medicine as to demand a lower temperature, endeavours to free itself from the febrile excess of heat by a "critical" sweat; as soon, therefore, as the required temperature is reached the sweating ceases. Even during the continuance of the sweating, but especially after this has ceased and the effects of the lowered temperature are manifest, the patients feel much more comfortable; this is especially the case in croupous pneumonia. A lower temperature, a pulse normal in rate and stronger, slower respiration, diminution of the pain in the side—these are all circumstances which give to pneumonia patients the feeling as of immense improvement in their condition. As soon as the

medicine is withdrawn, that is, 2-3½ hours after last dose (according to the amount taken each time), the old order of things is resumed: shivering occurs, and the temperature rises to the point corresponding to the acuteness of the disease. Nevertheless, in cases of pneumonia (which can be kept quite free of fever throughout their whole course), it was noticed that if they were methodically treated with kairin for 15-24 hours the influence of the drug was to some extent maintained even after its withdrawal. Further observations must show whether kairin has a specific action in pneumonia.

During the use of kairin (and also of the other two bodies mentioned), the urine becomes dark green, but contains no sugar or albumen.

One disagreeable point in this treatment is that the medicine must be given so often, every 2½ hours at least, if we wish to anticipate shivering and rise of temperature; this disturbs the night's rest. This drawback may be entirely overcome by the administration of a full dose (1.5-2 grammes) of *kairolin* the last thing at night; this keeps the temperature down for six hours, and the subsequent rise is gradual and without rigor. Before resorting to this method, however, various alterations and modifications of the administration of kairin should be tried to lessen the above mentioned drawback. Thus, the rigor and rise of temperature may be brought to that period of the day when remission of temperature might naturally be expected if the case were not under antipyretic treatment, as the lower the point to which the temperature has to rise the milder the rigor; accordingly, medication may be suspended about midnight. Or, by gradual lessening of the evening doses the temperature may be allowed to rise gradually; thus, at 8 P.M. 0.5 gramme, and at 9, 10, 11, and 12, 0.25 gramme; then the smaller the ultimate rise the less marked the shivering.

The drug seems, in all chronic and acute diseases without exception, to act in the same way, and for a similar length of time, against the symptom "fever."

It is suggested that kairin might prove an excellent remedy in malarial affections, by giving a dose of 1 gramme hourly for 3 hours before the expected attacks.

The other two bodies (*kairolin* and *chinolinethyl-hydride*), are identical in action. Single doses, such as would prove operative if kairin were used (0.3-1 gramme), have no effect, nor has a dose of 0.5 gramme hourly. But a dose of 1.5-2 grammes produces decided effect, more slowly developed, but lasting about 6 hours. Sweating is less marked than with

kairin; shivering on subsequent rise in temperature is absent or very slightly felt. Urine coloured the same as by kairin. The importance of these drugs for evening administration is obvious; but they are difficult to obtain, rarely pure, deliquescent, and very unpleasant in taste.

The difference in the action of kairin and kairolin may be accounted for in this way. According to chemical experience, all hydroxyl derivatives, not only of chinolin, but also of benzol, are more oxidisable than the corresponding bodies free of oxygen. Thus the quicker and slighter action of kairin, a hydroxyl body, may be explained, as the whole quantity taken comes into operation on the system immediately. On the other hand, it is conceivable that it is more quickly used up than the more resistant kairolin, which yields only gradually to the oxidising influences of the organism.—Prof. Filehne in *Berl. Klin. Wochenschr.* No. 45, 1882. *Cbl. f. d. Gesammte Therapie.* Jan. 1883.

In the *Deutsche Med. Zeitung*, 2nd May, 1883, Prof. Drasche, of Vienna, confirms Filehne's statements with reference to hydrochlorate of kairin. He has used it in cases of pneumonia, erysipelas of face, and typhoid fever, and invariably succeeded in lowering the temperature, sometimes by 3-4° C. The doses were those indicated by Filehne.

In the *Bull. Gén. de Thérapeutique*, 30th March, 1883, Dr. H. Hallopeau writes equally favourably of this new remedy. He substantiates all that Filehne has stated with regard to it, and observes that *of all our antipyretic agents it is that which, in non-toxic doses, is most sure, powerful, and rapid in action.* It is thus one of the most valuable therapeutic resources, enabling us to avoid with certainty the dangers which hyperpyrexia of itself involves.

Hallopeau inquires whether febrile reaction is not in a certain degree an act of defence on the part of the system against a morbid cause, and whether there may not be some danger in suppressing it suddenly? This is a question for study. If it be answered in the affirmative, kairin might still be given in small doses to moderate the fever without abolishing it.

Filehne states, in later communications (*Berl. Klin. Wochenschr.*, Nos. 6 and 16), that in using kairin patients must be studied and treated individually. In acute diseases in adults of medium weight and fair general condition, doses

of half a gramme every hour may be given. In patients of very slender build, in those who are much emaciated, and in hectic fever, much smaller doses should be given at first ($\frac{1}{16}$ - $\frac{1}{4}$ grm.); in such cases after doses of $\frac{1}{8}$ grm. [scarcely two grains] the temperature sometimes fell to 36° C., and even to 34.8° C. (94.6° F.) This fall in temperature was accompanied by no collapse, however; the pulse was stronger than usual, and the patients felt well. The author recommends that in following out the kairin treatment the temperature should be taken hourly, or every two hours, in the first few days, and should never be allowed to fall below 37.8° - 38° C. [100.4° F.] He thinks he has noticed that in hectic fever an undue reduction of the temperature (to 36° C. and lower— 96.8° F.) has had an unfavourable influence on the further course of the fever; while, on the other hand, most favourable results have been obtained by bringing the temperature down to about 37.8° C. (100° F.) and keeping it at that point for weeks.

Filehne distinguishes between two varieties of kairin—Kairin A, the hydro-oxyethylchinolin, and Kairin M, the hydro-oxyethylchinolin. It is almost exclusively the hydrochlorate of the former, of Kairin A, which is in the market, and which is usually prescribed simply as *kairin*; this hydrochlorate occurs in beautiful white crystals, easily soluble in water, having the same taste and capable of employment in precisely the same way as the hydrochlorate of Kairin M.

A few differences, however, have been noticed in the action of these two varieties of kairin. To obtain an equal fall in the (febrile) temperature, slightly large doses (about $\frac{1}{5}$ - $\frac{1}{2}$ larger) of Kairin A must be given than of Kairin M. The action of Kairin A is thus more gradual, it begins more gradually, disappears more slowly, and so lasts longer. Of Kairin A, therefore, the author advises that a beginning should be made with hourly doses of 0.25 gramme [nearly four grains], increasing to 0.5, or 1 gramme hourly in the following days, strict watch being always kept on the temperature. Filehne has never noticed cumulative action or any acquired toleration of Kairin A.

Drs. Freymuth and Pölchen (*Deutsche Med. Wochenschr.*, Nos. 14-16, 1883), have used kairin in 18 cases of relapsing fever, and in all of them, with one exception (in which the drug was vomited), the desired fall in temperature was obtained; but they had to give larger and more frequent doses than those mentioned by Filehne, and these were badly

borne on account of gastric disturbances and collapse. Injections into rectum and vagina had no result. Subcutaneous injections lowered the temperature, but hard painful swellings were developed locally, which lasted some weeks; two of these swellings, in the nates, suppurated. These observers confirm Filehne's statements with regard to perspiration, shivering, cyanosis, and coloration of the urine. The bluish-grey countenance, the livid lips, cool skin, small and compressible pulse, reminded them of the stadium algidum of cholera; only the general sense of vigour felt by the patients, and their invariable recovery, contrasted with it. In 173 cases occurring in the same epidemic, and treated with no drugs, the patients all recovered.

The kairin seemed to have no effect on the vital phenomena of the fully developed spirillum; it did, however, act very decidedly on the spirillum in that stage in which it is found immediately before the relapse. Thus, the drug was given with regularity to a patient, from the fourteenth day after the first attack; the second attack occurred, as usual, on the fifteenth day, but in a very modified form—with rigor but no elevation of temperature, and with spirilla in such small numbers that the nature of the attack was barely recognisable. This continued for 25 hours, when the kairin was omitted, this being followed in two hours by a classic relapse, a temperature of 40.5° C. [104.9° F.] and spirilla in abundance.

Dr. Paul Guttman (*Berl. Klin. Wochenschr.*, No. 31, 1883), has used kairin in a large number of cases, including pneumonia, typhus, diphtheria, measles, phthisis, typhoid, scarlatina, pleurisy, peritonitis, erysipelas, intermittents, relapsing fever, and septicæmia. In some of these cases the temperature was taken half-hourly, in others hourly, in the rectum, so that the beginning, duration, and subsidence of the action of the drug were well observed. His results fully confirm the statements of Filehne. Not one of his cases resisted repeated doses of 1 gramme; in some, half gramme doses given hourly for 3 or 4 hours, had no effect, necessitating the use of gramme doses. Among other matters he notes that the amount of the perspiration connected with the fall in temperature is not dependent on the nature of the disease, but on the rapidity of the fall; it is the greater the deeper and more rapid the fall. Diminution in rapidity of the pulse accompanies this reduction in temperature.

Guttman also makes the important statement that the

newer preparations of kairin cause no cyanosis or collapse, and that the subsequent rise in temperature when their action is over is usually unaccompanied by rigor; the older preparations, however, samples of which had been given to him by Filehne, had these drawbacks. Ringing in the ears was complained of in one of his cases, vomiting in only a few; children took and bore the drug as well as adults. It is best given in wafers; children take it well dissolved in sweet Hungarian wine. The rise of temperature following withdrawal of the medicine occurred only 20 times in Guttman's 72 experiments with the newer preparations of kairin. The author agrees with Filehne in advising, as the best method of preventing the rigor altogether, that the temperature should be brought down, not to the normal point, but to a point rather above it, 38° C. [100·4° F.] In no case did the drug seem to lose its efficacy by frequent repetition; with each new experiment the result was the same. The course of disease, under this antipyretic treatment by kairin, seemed to be in no way altered, either in duration or in other phenomena. As compared with quinine, kairin acts more quickly, and its action is more transient; given in hourly doses till 3-4 grm. have been taken, its antipyretic action is much more marked and more constant than that of quinine.

As regards the method of administering the drug, Guttman gives the following directions:—Half gramme ($7\frac{1}{2}$ grains) doses should be given hourly till the temperature falls to about 100·4° F.; if the effect of the drug seems to come slowly in this way, a gramme dose may be given; or starting with a gramme dose, this dose, or half gramme doses, may be repeated hourly, according to the rapidity and extent of the fall in temperature obtained. When the temperature has been brought down, hourly doses of a quarter gramme suffice to keep it down. To children quarter gramme doses may be given, with an occasional half gramme dose if necessary; to keep up the action of the drug, one-eighth gramme doses only are necessary.

The high price of kairin stands in the way of its free use; but it has already come down considerably in price, and at present costs about one-fourth more than quinine.



THE
GLASGOW MEDICAL JOURNAL.

NO. V. NOVEMBER, 1883.

ORIGINAL ARTICLES.

A CASE OF LIGHTNING STROKE.

BY JOHN YULE MACKAY, M.B.,
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(*With Photograph.*)

THE photograph illustrates the arm of a boy who was struck by lightning in the month of June, this summer. As the particulars of the case only came to my ears some time after the accident had happened, I am indebted to the father of the boy, Mr. William Gunn, Chemist, Duns, for the following very complete description of the attending circumstances. He writes:—

“About 11 o’clock, on the morning of Saturday, the 9th June, 1883, a thunderstorm of considerable severity, though of short duration, broke over the town of Duns and the immediate neighbourhood. My son George, aged about 13 years, and three other boys, were overtaken by the storm, and sought refuge in an empty stable which happened to be at hand. This stable stands alone, quite detached from all other buildings, and is so surrounded by lime trees that their branches literally form an awning over it.

“The four boys stood in the doorway, looking out upon the storm, three being abreast in the front, and one behind. It is worthy of remark here, that while the three boys who were in front, including my son, were marked on the arms, chest, or legs, the fourth, who stood behind, looking over the shoulders of his companions, showed traces of the lightning only upon his face and neck.

"They had not long occupied this position when they were all struck down, one being rendered completely unconscious, and the other three partially stunned. In the case of my son, the shock was accompanied by the sensation of a bright blue light and of extreme heat; he was thrown violently to the ground, and was severely hurt about the face and forehead by the fall. The motion of the arms was for some while completely paralysed, inasmuch as he was unable, until some considerable time after regaining consciousness, to remove his hands from his pockets, where he had placed them before the accident. There was also in the arms a sensation of numbness and cold, and the boy fancied that they had been broken at the elbows. Other voluntary movements were at first inaccurate and unsteady. Later, upon his complaining of a burning heat in the arms, his coat was removed, and the markings shown in the accompanying photograph were discovered, of an arborescent character, stretching from below the left elbow to the shoulder, and throwing branches, of a less complicated description, however, across the left chest. The marks were of a ramified, tree-like form, and seemed to radiate from two centres, as if the lightning had first struck the arm in two places and had thence broken over the surrounding skin. They were believed by many to be photographic images of a yew tree or of the fronds of a fern, but unfortunately for the holders of this theory no vegetation of such a description was within sight.

"Shortly after the accident the boy walked home without assistance, and on his arrival the marks were subjected to a closer inspection. They proved of a red colour, somewhat similar in shade to that of the spots of measles or scarlet fever. The surface of the skin was slightly raised over them, and the superficial heat of the injured arm was greater than that of the rest of the body. For two hours after the stroke they retained their original appearance, remaining, to the naked eye at least, perfectly unaltered. At 3 o'clock, four hours after the accident, they were photographed, and though somewhat faded, still showed clearly. By 7:30 o'clock in the evening they were hardly visible, and at 10 o'clock next morning had entirely disappeared. Besides the first effects of the stroke, which quickly passed off, and the marks above described, the boy presented no other signs of the accident. The clothes were soaked by rain, but not harmed by the lightning, and several pieces of metal about his person—a knife, buttons, &c.—were uninjured.

"Shortly after the flash the boys noted a peculiar sulphur-

like smell in the air, probably due to ozone. A metal water pipe running along the roof of the stable was curled up, and a few of the slates were displaced. The leaves upon the lower branches of the lime trees, within five yards from the door, had the appearance of being eaten by caterpillars or broken by a switch. The marks which the other boys showed were of a very similar character to those already described, though hardly so compact and so clear. In one case, that of the boy standing behind, they were visible only upon the head and neck; in another they were confined to one leg; and in the third to the inner surface of one arm. In no case were there any after effects, such as vesication or shedding of the skin."

We are thus indebted to Mr. Gunn for the promptitude with which he has acted, and for the production of the first photograph of a phenomenon which, until now, many have regarded as fabulous. The photograph is the work of Mr. Bruce of Duns.

The following remarks deal chiefly with the history of the subject, and with the causes to which such markings are due.

Very numerous examples might be given of the wonderful powers which lightning was once reputed to exhibit, but it is only necessary to mention its so-called photographic action, as it is that which bears most directly upon our subject. The electric flash was believed to possess the property of reproducing accurately, upon the clothes or skin of its victims, images of the surrounding objects, and in the works of the older writers many instances of the kind are given. These representations seem to have been of the most diverse kind. Trees are most commonly described, but in one case a cow, in another a horse shoe, in a third a piece of furniture, and in a fourth the whole surrounding landscape is mentioned. Dr. Stricker* of Frankfort quotes from Raspail the case of a boy, who, while climbing a tree for a bird's nest, was struck by lightning and showed afterwards upon his breast a complete picture of the tree, with the nest upon one of its branches.

For all those cases in which trees are said to have been so photographed, some excuse, at least, is offered in the tree-like markings which are sometimes found upon the surface of the bodies of those struck by lightning. With regard to such marks, however, it is not surprising, from the rarity of their occurrence, and from the amount of fable and exaggeration which have so long surrounded the whole subject, that many should still doubt their existence. There are, however, several cases on record in which branching lines of the description

* *Virchow's Archiv*, vol. xx.

above referred to have been described by regularly qualified scientific observers. Stricker, in the article already mentioned, in which he gives statistics of more than thirty thunderstorms, during which many people were struck, quotes three such cases.* These, and one or two others,† I have been able to obtain access to, but in no one of them is the verbal account accompanied by any picture or diagram of the appearance. There are two other cases, however, in which diagrammatic representations of the position and general direction of these arborescent lines have been given, and of these, since they are interesting on account of the theories offered for their explanation, a brief description is here given. Rindfleisch‡ describes the case of a man who was killed by lightning on the 31st of May, 1862. Near the left axilla was a deep wound, and stretching thence down the left side a series of smaller wounds. Beginning at these wounds, and extending across the surface of the abdomen and down the right thigh, were tree-like ramified lines which are figured in the accompanying diagram.

At the time of the fatal injury the man wore a belt, and this, being tightly drawn, threw the skin of the abdomen into longitudinal folds, and over the tops of those the lines ran without dipping down into the intervening hollows. The belt being removed, the appearance thus produced is that shown in the diagram.

Dr. Stricker, in a second memoir,§ quotes, from Mayer, the case of two soldiers, who were struck by lightning, in the year 1785. The first had the hair of the head burned, and showed, passing down the whole length of the back, a strong red line, with many ramified branches. The three best marked of these side lines passed round the right side of the body to the shoulder, the breast, and the hip. Both thighs were free; but behind the left knee a star-like mark was found, and the back of the right leg showed branching lines. The second, as in the diagram, displayed the effects of the lightning, chiefly upon the right shoulder and leg, and upon the left groin.

Questions as to the causation of these markings are, from

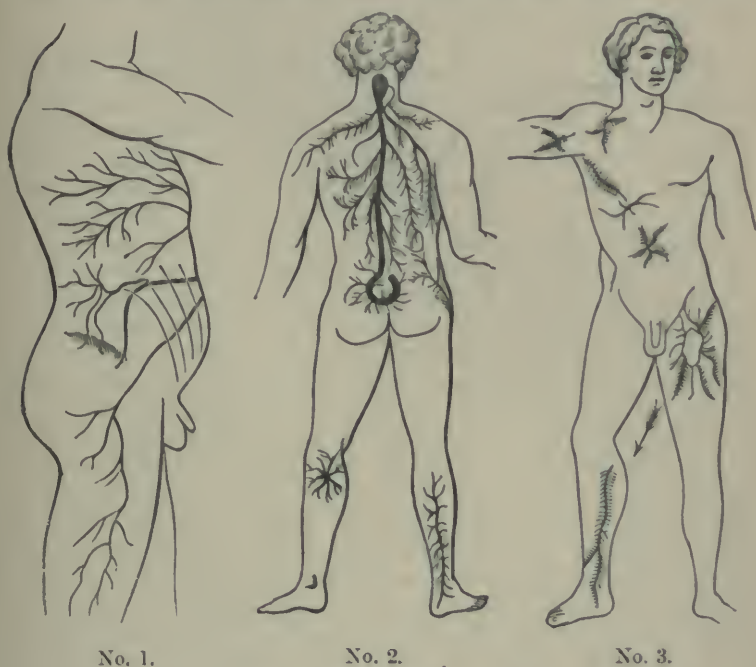
* Dr. Schieffer of Schleiden, 1833; Dr. Alexander of Altona, 1841 and 1844.

† Dr. Hortsman, *Casper's Vierteljahrsschrift*, 1863; *Australian Medical Journal*, 1870; Dr. Jefferies of Lochmaben, *Brit. Med. Journal*, 1876; Dr. Waugh, *Lancet*, 1878.

‡ Virchow's *Archiv*, vol. xxv.

§ Virchow's *Archiv*, vol. xxviii.

the nature of the subject, very complicated. Putting aside the photographic theory altogether, one or two of the authors already mentioned adopt different views. Mayer gives the following explanation of the case of the two soldiers already quoted:—"The cause of the formation of those star-like appearances, which lightning, by its action upon the blood, leaves upon the skin of those struck, is to be found in the negative electricity which was heaped up



Cases of Lightning Stroke (reduced).

No. 1, from Rindfleisch ; Nos. 2 and 3, from Stricker.

upon the surface of the bodies of the two men. In addition, the blood moving in the vessels lying immediately under the skin must of necessity have been more electric than the skin itself, since bodies capable of showing electricity show the more the harder they are rubbed. Further, the heat of the day must have exerted a powerful influence. Nutrition, and probably also other processes, must have been affected by the thunderstorm, and these causes acting together would

produce an increased movement of the fluids of the body and more friction between them and the walls of their vessels. Now, on account of the preponderance of negative electricity upon the surface of sweating bodies, the positive electricity is so quickly taken up that it is very difficult to make such bodies positively electric. So the cause seems to me to be—that the negative element draws the positive greedily to it, and that the most negatively charged blood in the vessels of the skin, exercising the most influence, is destroyed, and those star-like *electrophor figures* must of necessity result."

Professor Pfaffe of Stuttgart, quoted by Stricker, adopts a somewhat similar theory, and compares these tree-like markings to what are known as *Lichtenberg's figures*. These figures are very interesting in this connection as demonstrating the distribution of the electric discharge over a non-conducting surface; they are produced in the following manner:—A charge of positive electricity from a Leyden jar is passed, through a needle, to the surface of a glass plate, and when, on its being discontinued, the plate is dusted over with lycopodium powder, a branched star-like or tree-like figure is produced, owing to the peculiar distribution of the powder, upon the surface. In this experiment the plate is supposed to have become negatively electrified, and so might with justice be compared to the skin, while the positive discharge from the Leyden jar corresponds to the electric flash.

In criticising the views of Mayer and Pfaffe, Stricker simply remarks:—"One sees that here the skin is compared to the disc, and the destroyed blood from the vessels to the powder, without consideration either of the different nature of the body, or of the accompanying circumstances which are necessary to the success of the *Lichtenberg* experiment." In his earlier paper, Stricker has set down these appearances to an injection of the vessels, and Dr. Langerhans of Berlin* adopts a similar view. Rindfleisch, however, points out, from the case of which he gives a diagram, that the markings in no way correspond to the course of the vessels of the region which they occupy, and this opinion is fully borne out by the accompanying photograph. The argument is strengthened also by a peculiarity in his case—namely, the interruptions of the lines over the abdomen, due to the folds caused by the belt, and already described. In his second paper, in offering another explanation of this peculiar phenomenon, Stricker refers to the laws relating to the conduction of lightning through the air. He points out that

* Virchow's *Archiv*, vol. xxiv.

"the air, during a thunderstorm, contains a mixture of cold and warm dry and moist masses, the one set easily combustible, the other with difficulty so," and that "the electric discharge passes always through the easier medium, not taking the most direct way to the earth." Applying this law to the passage of the electric fluid over the human body, he states, after Reimarus, the two following propositions:— 1st.—"A breaking up of the discharge takes place when it is forced to take its way through a bad conductor;" 2nd.—"At the points where the lightning strikes and leaves the body the injuries are most severe, since there the free spreading of the discharge is most hindered." By applying these propositions and assuming the positions in which, seventy-eight years previously, the two soldiers were placed, Dr. Stricker succeeds, to a certain extent, in explaining the localisation and direction of the markings which the lightning left upon their bodies.

A glance at the diagram will render his explanation clear. The first "sat with parallel outstretched limbs; hence, the freedom of the legs from injury, with the exception of the right heel, which was the place where the lightning left the body." The second "had the right thigh laid over the left, and the passage of the lightning over the groin being so hindered, the burning in that region resulted. The inner ankle of the right foot was the place where the electric current left the body." To the case of the four boys, described above, this reasoning cannot be satisfactorily applied, inasmuch as the exact position which each occupied is not remembered; nevertheless, it is possible that the injured parts may have been those to which pressure was most directly applied, either on account of leaning against the lintels of the door, or by the wet garments. Of the intimate nature of the marks themselves, Stricker says nothing.

It seems necessary to study these wonderful appearances from two points of view; namely, to consider their position and direction in connection with the peculiarities of the electric discharge, and to refer to an examination of the tissues of the body struck for an explanation of their intimate constitution. In the theories already noticed a source of confusion appears to arise from the attempt to draw all the results from one or other of these alone. Thus the view which refers the causation to an injection of the vessels does not really combat either of the electric explanations which follow it, but should be taken along with them.

With regard to the manner in which the electric current passes over the surface of the body, the propositions which Stricker lays down seem reasonable; namely, that it tends to divide in a branching manner, more especially if conduction be hindered or if the current be weak. This is quite in keeping with the appearance of that form of discharge from the electric machine known as the *brush discharge*, in which the spark passing through the air takes the form of an arborescent figure without leaves. I cannot, however, see the force of his objection to Dr. Pfaffe's comparison of these markings to the *Lichtenberg* figures, inasmuch as these figures seem due to the same cause—the splitting up of the positive discharge when passing over the surface of a bad conductor, which at the same time is negatively electrified. A comparison of the accompanying photograph with such figures shows a very marked similarity. In this connection, too, it is interesting, from their similarity of appearance, to mention the electric cohesion figures of Dr. Strethill Wright, first shown by him to the Royal Scottish Society of Arts in 1864.

Considering, then, that both these explanations represent only different methods of stating the same truth, and satisfactorily account for the position and direction of the arborescent lines, we are free to pass on to an examination of the structure of the lines themselves. From their red colour they would appear not to be due to a charring or burning of the skin, but would seem to owe their presence to the blood immediately under the surface. In this they differ markedly from the blackened surfaces sometimes seen, on which a stronger portion of the electric current has fallen. The arguments of Rindfleisch prove that, since the marks do not correspond with the direction of the vessels of the region which they occupy, they cannot be referred to any of the larger arteries or veins. One is therefore led to believe that these appearances owe their presence to a change in the blood of the capillary network lying immediately under the surface, and since a simple injection of these would lead, not to well defined lines, but rather to a general erythema, that the change induced is not injection but coagulation of the blood.

It may be objected in answer to this argument that the blood of lightning-killed persons seldom or never coagulates, usually being found fluid in the vessels after death. But besides that, in the experiments of Scudamore mentioned by Richardson, and in those of Richardson himself,* it was found that when an electric current was passed through blood con-

* *Medical Times and Gazette*, 1869.

tained in small vessels, the temperature not being artificially kept down, coagulation ensued; coagulation of blood is not necessarily such as is dependent on the presence of fibrin, and in this instance it would probably be coagulation of albumen by heat. The conditions necessary to the success of the Richardson experiment would be, of course, perfectly realised in the case of the capillary circulation. In a network so freely branching, even large tracts of the vessels might be filled with clot without causing any appreciable alteration in the vitality of the part, or in the surrounding circulation. A glance at the photograph is sufficient to show that each ray of the arborescent figure corresponds not to a single capillary but to many. The conclusion then to be drawn is, that the lightning has broken up into branches upon the surface of the skin, and that a capillary coagulation has taken place below it, following closely the distribution of the electric fire upon the surface.

It is sincerely to be hoped that, in any case occurring with similar appearances, where there is a possibility of microscopic study, as there would be in a fatal case, the marks will be subjected to a scientific scrutiny.

In concluding, I have to express my gratitude to Dr. Cleland for much valuable assistance.

A CASE OF "MOVABLE" KIDNEY PERMANENTLY CURED.

By FRANCIS HENDERSON, M.D.

As the readers of the *Journal* have had their attention recently drawn to the subject of "movable" or "floating" kidney, by Dr. David Newman's excellent article,* it seems opportune to place on record a case which presented itself in my practice many years ago.

The following case illustrates, what does not now require to be proved, that a displaced kidney may give rise to very serious symptoms in a patient who is otherwise free from disease. This case, moreover, is particularly interesting as being an instance of a complete and permanent cure effected without surgical operation.

Now-a-days, when the surgeon boldly invades the grea

* "On Malpositions of the Kidney." *Glas. Med. Journal*, August 1883.

cavities of the body—clearing out tubercular vomicae—freeing an impacted gall duct—stitching a displaced kidney to the lumbar muscles—and in other ways threatening the position of the physician in his own domain, it behoves the latter, in friendly rivalry as well as for the general good, to show that his art does not end with the diagnosis of abnormal conditions, but also extends to their successful removal.

In the end of 1865, Mrs. M. came to Helensburgh to spend the winter months. She was then about 35 years of age, had been married for several years, but had no child. For two or three years previously, she had suffered from various stomach symptoms, and her condition was growing worse, in spite of much medical treatment. The last doctor who attended her had told her husband that there was thickening of the coats of the stomach, and had evidently given a serious view of the case. When I first visited the lady in December, she was weak and emaciated, depressed and anxious. She complained much of pain in the region of the stomach, coming on immediately after food had been taken, and lasting long. She also suffered from a dragging pain while walking, felt most in the lower dorsal region. On examining the abdomen a tumour was found in the upper part of the umbilical region, lying just in front of the vertebral column. It was smooth and roundish in outline, and painful on pressure, the pain radiating from it upwards over the stomach, and backwards towards the shoulder blades, also sometimes downwards over the bowels. The tumour ceased to be felt when the patient took a deep inspiration. The other organs were healthy. The possibility of the tumour being a displaced kidney did not occur to me, and so the treatment was continued for a time very much on the previous lines—viz., means to allay the pain and to improve the nutrition of the patient. As regards the first object of treatment, pustulation by tartar emetic ointment was found to relieve the pain very decidedly. In the light of the conditions afterwards recognised, it is not unlikely that part of the good effect of this remedy was due to the lying in bed, which it largely entailed. As regards the digestive functions, observation showed that the pain in the stomach, after food, was not dependant on the *quality* of food; it was the *quantity* or bulk of the food that excited the pain. This the patient had ascertained for herself, and so had come to subsist almost exclusively upon small quantities of strong beef-tea.

About three weeks after this lady came under my care, I discovered that the tumour in the abdomen was movable,

that it could be easily pushed into the right loin, and further examination left no doubt that it was a "floating" or "movable" kidney. A study of the case in this new light led to its successful treatment. *First.*—The patient was assured that the swelling was only a kidney out of its place, and so was delivered from the physical and mental depression of being the subject of a tumour. *Second.*—A soft pad and bandage were suitably applied to keep the kidney in its place. *Third.*—As the loss of fat, both local and general, was looked upon as the chief cause of the displacement, the chief remedy, it was considered, must consist in restoring its natural packing—the fat about the kidney. For attaining this end, the circumstances proved most favourable. I had at this time one or two patients under medical supervision, who were undergoing the rigid severities of "Bantingism," which was then at its height, and so I was specially alive to the fat absorbing properties of a butcher meat diet. Mrs. M. had been living, as stated above, on small quantities of beef-tea in order to avoid the pain which bulky food produced. This system was reversed, and she was ordered the articles of diet prohibited by "Banting."

It was found that by the help of the bandage, and by keeping the horizontal position while taking food, and for some time thereafter, Mrs. M. was saved the pain previously excited by food in the stomach. Moreover, experience showed that when pain was thus avoided, the digestive organs did their duties extremely well. Very soon the patient was able to take a fair quantity of food, which consisted of the fat forming materials—viz., butter, cream, milk, farinaceous, saccharine, and starchy food.

In addition to regular meals, Mrs. M. managed to consume a large quantity of saccharine matter in the form of "barley sugar," between meal times. Steady progress was made towards health. On the 28th of March, about two and a-half months from the commencement of this treatment, there is the following entry in my notes:—

"Patient has worn bandage and followed the anti-Banting diet. Is very considerably stouter in face and body. On examining abdomen carefully I could not make out a trace of kidney. There was no tumour, as formerly, in the middle line over vertebral column. The whole abdomen had a firm, solid feeling from fat, and the patient measures between two and three inches more round the waist. Has had no return of pain in the stomach, no dragging pain, nor dyspepsia of any kind. Tongue clean."

The use of the bandage was, I understood, soon after this, entirely discontinued. I met this lady several months afterwards; she regarded herself as perfectly well. She had grown stouter, had recovered her good looks, and was, indeed, a picture of blooming health. I have not seen this lady since, as she lives in another part of the country; but quite recently I learned that she is well, and has enjoyed good health during these seventeen years. The cure, therefore, has proved permanent.

Remarks—Etiology.—There can be little doubt in view of the history and issue, that the movable condition of the kidney in Mrs. M.'s case was due to absorption of the fat, which forms the natural packing of the organ. None of the other alleged causes, as far as was known, were, or had been, in operation. There had been no pregnancy to stretch and render flaccid the abdominal walls—no tight lacing—no mechanical violence—no disease of the kidney, which, involving increased size and weight, might have stretched its attachments, and no disease or displacement of the adjoining organs. Absorption of the renal fat was the *most probable* primary cause of the mobility of the kidney in this case. We cannot get beyond "the probable," because in no given case can we affirm that the natural fat is deficient, without *post-mortem* evidence or actual inspection of the region.* The general emaciation in Mrs. M.'s case, which was not extreme, but which, no doubt, aggravated the local conditions, was apparently a consequence of the interference with the functions of the stomach which the displaced kidney occasioned.

Regarding the form of dyspepsia or failure of nutrition, which led to the absorption of the renal fat in this patient, I have no information to give.

Absorption or diminution of the fat around the kidney does not seem to be a very rare event. It probably occurs most frequently as a part of general emaciation; but the question presents itself, Is it not sometimes met with independently? or, at least, does not local absorption of fat take place, quite disproportionately to general emaciation, and therefore dependent on other causes?

I have not been able to find much *post-mortem* evidence

* In the case in which Dr. Newman operated, related in the *Glas. Med. Journal*, August 1883, the adipose capsule not only was found to be freely movable behind the peritoneum, but the kidney itself "was easily pushed backwards and forwards within the capsule." The latter condition Dr. Newman attributes to atrophy of the adipose tissue.

to supply a decided answer to these questions, as this is not a subject to which attention has been hitherto particularly directed. In support of the opinion that absorption of the renal fat may proceed from causes other than those which produce general emaciation, I would refer to a specimen shown to the Pathological and Clinical Society of Glasgow during last session, by Mr. Lindsay Steven, in which there was an entire absence of fat. Respecting the condition of the body, from which this specimen was obtained, it is stated in the *post-mortem* records of the Western Infirmary, that "the external appearances present nothing remarkable." This case is reported in the *Glasgow Medical Journal* for October 1883, by Mr. Steven, as an instance of movable kidney, due to tight lacing, which had undoubtedly been practised. The fact of the absence of fat is not stated in this report, but Mr. Steven writes to me:—"As regards the general condition of the body in this case, so far as I can remember, there was no notable emaciation of the general fatty tissue, although that naturally around the affected kidney was entirely absent, and not *merely diminished* in amount." Mr. Steven further gives his opinion as the result of his *post-mortem* examination, (although he does not wish to make a definite statement on the point), that the absorption of kidney fat does not occur *only* as a part of general emaciation.

In an abstract of an article on "movable kidney" by Professor Oppolzer* it is stated, "In all the cases in which he (Oppolzer) had the opportunity of examining, the patients dying of some other disease, the kidneys were found healthy, but in these cases there had been a deficiency of the cushion of fat and an extension of the renal vessels." And further on, we read, "In fat persons the diagnosis may be impossible." This surely implies that in Oppolzer's opinion, founded, we must suppose, upon observation, "movable kidney" may occur in persons who are even the reverse of emaciated.

Positive evidence that diminution of the kidney fat takes place without general emaciation, is supplied by Dr. Newman's observations. In the article above referred to, we read—"In the cases of slight mobility of the kidney, which I have observed in the *post-mortem* room, there has nearly always been atrophy of the adipose capsule." Dr. Newman has kindly put at my disposal the following information regarding these cases. They are 19 in number:—"In two of them the right kidney was found to be slightly mobile, and the adipose capsule atrophied, without there being any general

* *Med. Times and Gazette*, 1857.

emaciation." "All the others (17) that I have seen have been associated with considerable general emaciation." As regards these last cases, it does not, of course, necessarily follow, that the atrophy of the adipose capsule was the effect of the same causes which produced the general emaciation, or even that they were simultaneous occurrences.

There is another *post-mortem* observation which has a direct bearing on this subject—general emaciation is sometimes present to a great degree, and yet the renal fat is of the average amount (making due allowance for very considerable variation in the normal quantity). This statement I make on the authority of Dr. Finlayson who has observed cases of phthisis dying emaciated, in which the fat around the kidneys was not diminished.

The evidence which has been brought forward warrants the conclusion, that absorption of the renal fat does occur not only as a part of general emaciation, but also from other localised causes or influences, and therefore in a given case of "movable kidney" discovered during life, in a patient who is not emaciated, we are not entitled to *exclude* absorption of the renal fat from among the possible causes.

These considerations bring into prominence the importance of a reduction of the natural renal fat as a factor in the production of "movable kidney."

Little or nothing can be said as to the causes which lead to a local absorption of fat, we can only refer to instances more or less analogous. There is, it will be admitted, a certain correspondence between loss of flesh or fat in certain regions of the body, and a tendency to particular diseases—for example the late Dr. James M'Ghie* was wont to draw attention to a degree of loss of fat about the temples, which brings the frontal ridges and zygomas into prominence, as indicating a phthisical tendency, at a stage when there is no notable emaciation. I think there is truth in this observation.

Instances of an opposite character—viz., abnormal accumulation of fat in certain localities, also take place. I have met with several examples. They presented themselves in the convalescent period of an endemic form of illness, in the severer cases of which the whole nervous system is enfeebled, and its action in many respects deranged.† In some of the cases during convalescence, when a general increase of flesh

* Dr. M'Ghie at the time of his death was Superintendent of the Glasgow Royal Infirmary.

† For a description of this endemic illness see articles on "Influenza."—*Glas. Med. Journal*, 1877 and 1880.

and fat was taking place, *local deposits of fat* gradually formed. They were situated on the outer side of the arm near the insertion of the deltoid, and on the outer side of the thigh, below the trochanter. These *pads* of fat measured 3 to 4 inches in length by about 2 to 3 inches in breadth, and were sometimes half-an-inch or more in thickness. Many months elapsed before they were absorbed and the natural contour restored. Their symmetrical characters on both sides of the body showed that they were of nerve origin.

We may say that these deposits of fat were due to deranged or perverted action of certain *trophic* nerves, and we may suppose that a different disorder of the same kind of nerves might occasion the removal of fat from its natural situation around the kidneys.*

It is more than likely that when displacement of the kidney takes its origin in absorption of the renal fat, that this process is symmetrical, affecting both kidneys, although from anatomical reasons it is comparatively seldom that the left kidney becomes so movable as to be a source of uneasiness.

Diagnosis.—It has been said that the most common cause of error of diagnosis in cases of displaced kidney is, that the possibility of a tumour being a displaced kidney is not considered. My failure in the first instance to diagnose the case I have related illustrates the truth of this remark. Whenever the mobility of the tumour suggested its nature, palpation and percussion, taken with the effects of change of posture, made the diagnosis easy.

Dr. Newman discards the use of the terms "movable" and "floating" as indicating different degrees of mobility. He limits the term "floating" to cases in which a meso-nephron exists. By "movable" kidney he understands a condition in which the kidney is freely movable within its adipose capsule, or one in which, from loosening of its attachments, the capsule itself can move behind the peritonæum, or a combination of both. This is a clear anatomical distinction, and it is one of practical importance when it can be made out clinically. This may seldom be possible with *certainty*, but considerable *probability* may be reached. The case related was *probably* one of "movable" kidney, according to this definition. It is stated in my notes of the first examination that the tumour lying over the vertebral column ceased to be felt when the

* That the growth of the renal fat is under local control is further illustrated by the great hypertrophy of adipose tissue, sometimes found surrounding a kidney which has suffered from hydronephrosis. (See Dr. Coats' *Pathology*—"Fatty Infiltration.")

patient took a deep inspiration. This showed it to be a retro-peritoneal tumour, or at least a tumour closely attached to the posterior abdominal wall. A "floating" kidney provided with a meso-nephron of sufficient length to allow of free mobility would, the patient being horizontal, descend towards the pubis during inspiration. This is one point of diagnosis; the other is the result of treatment. A kidney which was so completely returned to its natural situation that it could no longer be discovered through the abdominal wall by most careful examination, and which was so fixed by the restoration of the fatty tissues of the body that the symptoms which its mobility caused entirely ceased, is certainly far more likely to have been a "movable" kidney than a "floating" kidney in the sense defined. Of course, it is conceivable that a combination of these conditions might occur—a kidney possessing congenitally a meso-nephron might become still more mobile in consequence of loss of the fat and in this way give rise to symptoms; but if a "floating" kidney is, as we are told, a very rare occurrence, the combination may be practically excluded.

Treatment.—The removal from the lady's mind of the dread of a tumour appeared at once to raise the level of her vital functions and thereby contributed to her recovery. The use of a soft pad and flannel bandage was, I believe, of some use at the first in preventing the kidney from becoming displaced and exciting pain, but it was not very long *thoroughly* applied, and I have no hesitation in giving nearly the whole credit of the cure to the gain in flesh in general, and to the accumulation of adipose tissue in the abdominal walls, and in the renal regions in particular, which resulted from the prescribed diet being freely taken and well assimilated.

The practical lesson which the successful issue of this case teaches is, that when a "movable" kidney gives rise to uneasiness, pain, or other symptoms, in addition to the use of a well adjusted bandage, and in addition to the use of means to remove or relieve any other discoverable disease or disorder, the physician ought to attempt to restore or increase the natural packing of the kidney by every means calculated to *fatten his patient*. And inasmuch as absorption of the renal fat, as a part of general emaciation or independent of it, is probably the most common primary factor in the production of "movable kidney," this special aim of treatment must be frequently applicable.

Experience alone can determine to what extent this plan will prove successful in similar cases. It is worthy of a fair trial, and if in conjunction with medicinal treatment which

may be indicated, and the use of a proper bandage, it fails to cure or to relieve the patient, recourse must then be had to *nephroraphy*, which has already yielded such satisfactory results in the hands of Dr. Hahn of Berlin, Dr. Newman, and other surgeons.

ON DISINFECTION BY HEAT, WITH DESCRIPTION OF A NEW DISINFECTING CHAMBER.

By JAMES ADAMS, M.D., &c.

To Dr. W. Henry of Manchester is due the merit of conceiving and demonstrating by actual trials the fact that heat destroys or neutralises the morbid matter of certain communicable diseases.

In 1832 (*Phil. Mag.*, vols. X, XI), he published the results of experiments, showing that cow-pock matter becomes totally inert after exposure *for some hours* to a temperature of 140° F.; and that clothing designedly infected with scarlatina and typhus *contagium* was afterwards worn with no bad results by individuals likely to be susceptible, such clothing having previously been confined *for some hours* in a temperature of 200° to 206° F.

Since the time of Dr. Henry, various methods have been employed for practically utilising his richly suggestive conception, but in some instances without observance of his precautions, of which more hereafter. Meanwhile, a short reference to the nature and properties of the matter that transmits contagious disease will aid my description of a new disinfecting chamber, professing to have some important distinctive features.

Of the constitution of morbid poisons we are as ignorant as of that of prussic acid or of strychnine; nor is it probable that the knowledge, if we possessed it, would throw any light on their mode of action, so far as relates to the essential morbid principle. We are well acquainted with their *chemical composition* without in any way understanding how they act so powerfully on the animal system. But we know they are capable of being decomposed by weak chemical agents, and rendered inert by temperatures of about 200° F., and therefore that their constitution is not stable, and that they are held together by very feeble affinities.

That contagion is connected with the diffusion of organisms possessing vitality may now be assumed as an established axiom. This doctrine, known as the "Germ Theory," is usually ascribed to Pasteur, and it is undeniable that he is entitled to pre-eminence in enunciating the truths on which the doctrine is now so soundly based. But the notion was held as far back as 200 years ago, and originated with Kircher, who advanced the view that *animalculi* or *acari*, diffused through the atmosphere, were the true originating causes of epidemic and contagious diseases. His opinion was endorsed by Linnaeus and advocated by other eminent men, but did not meet acceptance among physicians. On the contrary, it was by them, until a recent date, held that there existed a deleterious principle or medium, vaguely expressed by such terms as "fomites," "virus," "effluvium," &c., which became contagious or epidemic by some occult and mysterious influence, some "corruption of air," or some spontaneous change in inanimate matter. And it is illustrative of the general notions that long prevailed, and at the same time interesting in the present connection to note, that Dr. Henry, who devoted much consideration to the problem, and whose name is so honourably associated with the subject of disinfection, was a strong disbeliever of Kircher's hypothesis, and characterised it as singularly unsound—as having not a single valid analogy to confirm it—and as being at variance with all that is known of the diffusion of volatile contagion.

So late as 1860, the mysterious *something* that originated epidemic and contagious disease was a matter of keen controversy, and was generally believed to have its most probable solution in establishing or disproving the doctrine of spontaneous generation, regarding which the views of the illustrious Liebig were held open to refutation by his no less illustrious contemporary, Pasteur.* The continuous and untiring researches of Pasteur, aided by others, and at a later date very materially by those of his able expositor, Tyndall, have clearly demonstrated not only the fact of the generation of certain communicable diseases by living organisms or "germs," but have gone far to make it very probable that it is through living organisms or germs that all zymotic diseases are propagated. According to this doctrine, putrefaction and epidemic disease alike, arise, not from the air, but from something contained in the air. This something is not a vapour nor a gas, nor a molecule of any kind, but a *particle*, or bit of liquid, or solid matter, formed by the aggregation of

* See Addenda.

atoms or molecules. Tyndall has shown that the air is, at all times, even when free from microscopically visible particles, beset with much smaller ultra-microscopical particles, and he alleges that air from which the particles have subsided—air which is “optically pure,” as determined by the electric beam—is no longer capable of contaminating liquids, or of inducing fermentation or putrefaction. From such facts, and from a review of the whole field traversed by other observers, he concludes that these particles are organisms, the germs of septic bacteria. “The thing,” he says, “which we vaguely call a ‘virus,’ is, to all intents and purposes, a seed. . . . As surely as a thistle rises from a thistle seed, as surely as the fig comes from the fig, the grape from the grape, the thorn from the thorn, so surely does the typhoid virus increase and multiply into typhoid fever, the scarlatina virus into scarlatina, the small pox virus into small-pox.”

This “virus,” these particles or germs, are *volatile*—are shed freely from infected individuals and from their clothing, and are wafted to and fro by aerial currents. Hence, all appliances which have for their object to limit the spread and ensure the destruction of these germs should be planned with special provision for this dangerous property of volatility in the germs of disease.

While the hypothesis of spontaneous generation was in dependance and under anxious discussion throughout the scientific world, heat was the chief agent employed to determine the actual vitality of microscopic forms that are developed so abundantly in infusions of organic matter, and even in saline solutions. And while there was a general *consensus* to the effect that heat destroyed the evidence of vitality drawn from active movements, there was a great conflict as to the *degree* and *duration* of heat required. Moreover, there was a renewed generation of the same forms frequently observed in the liquids supposed to have been sterilised, which naturally gave rise to the belief in spontaneous generation. The first light thrown on this perplexing riddle was by Professor Cohn of Breslau, who showed that confusion and contradiction had arisen from having failed to distinguish *the growing germ* from its seed or spores. And it was reserved for Professor Tyndall to pulverise and destroy for ever the doctrine of spontaneous generation, by an exhaustive series of brilliantly conceived and thoroughly conclusive experiments. He showed that the vitality of a germ or embryo organism and its disposition to development was a latent property dependant on different conditions

of species, age, dessication, exposure to air and light, &c., and that, subject to these varying conditions, there were required varying periods for germination; that in the operation of boiling which was usually adopted for their destruction, the broods or crops may overlap each other, the new brood making its appearance before the old brood died away, and that by repeated boilings at short intervals, and not by prolonged boiling, dealing with each successive crop as it springs into active life, there was effected ultimately a complete destruction. Finally, he showed how all preceding observers had failed in their best intended efforts to procure a condition of the air absolutely, or, as he phrases it, "optically pure;" and with this necessary condition of purity secured, he predicted with an accuracy that has not since been gained, that there never would again occur an example of so called spontaneous generation.

The distinction to be observed between the seed itself and the developing organism cannot therefore be too strongly impressed on the mind when dealing with methods of germicide. Notoriously the growing or adult organism can be easily destroyed. Not so the seed. The contrasted difficulty has been well expressed by our senior city member, Dr. Cameron, in his very instructive, and in every respect excellent, monograph on "Microbes." Dr. Cameron says:—"As to the spores which they (*i.e.*, the developing or adult organisms) produce, and from which succeeding generations spring, there is almost no killing them. The more you dry them the better they resist destruction. Time is no object with them, and they maintain their dormant vitality for an indefinite number of years. Absolute alcohol has no effect on them. As to oxygen they can stand that concentrated by the pressure of twenty atmospheres, and be none the worse. Two or three hours' boiling, if they have been well dried beforehand, seems not to hurt them, and they have even been known to resist eight hours of the process. *The only effective means for their immediate destruction that I am aware of is the flame of a spirit lamp.* To that their extreme minuteness renders them an easy prey."

But Pasteur never saw germs resist 230° F., or the adult organism from 128° to 140° F. *when in the moist state.* Chauveau, Calvert, Roberts, Tyndall, and many others have shown that from 140° to 212° F. is a degree of heat that few developed germs can sustain. According to the very recent experiments of Koch, Wolffhügel, Gaffky, and Læfleür, exposure to temperatures of 212° to 221° F. in dry heated

air effects easily the destruction of baccili and "adult" bacteria; while *spores* of mould were not killed after being subjected for an hour and a-half to air heated from 230° to 240° F., and *spores* of baccili were destroyed only after being confined for three hours in an atmosphere of 284° F. On the other hand, these last named observers have given very important evidence as to the difference in effect of heat, according as it is dry or humid, for they found that spores of garden earth and of carbuncular disease lost all vitality by an exposure, of only 10 minutes, in hot vapour registering 230° F., and they assume that this is the temperature to which ought to be heated any morbid principle of an unknown nature which can transmit disease. Their experiments show that in a practical point of view one cannot have absolute confidence in dry heat for the disinfection of all suspected objects. On the whole, it may be affirmed that duration of heat and its degree are mutually complementary both with dry and with moist heat, a long exposure to a low degree being equivalent to a shorter exposure to a high degree.

The natural inference from such experiences is, that in seeking to disinfect by heat, that heat should be carried as high, and continued as long as is possible, or necessary, to ensure the destruction of infective matter; subject only to the limit that infected clothing or other articles operated upon may not be injured or destroyed. And in determining the practical limit that is expedient, I have again to make honourable mention of Dr. W. Henry, who made practical trials 50 years ago on fabrics of clothing and other articles, which have left little save gleanings for subsequent observers. For the experiments of Ransom, Chaumont, Vallin, Koch, Wolffhügel, and others, have added little beyond a confirmation of Dr. Henry's conclusions, and to these later observations I need not therefore refer in detail. They show in summary that exposure in dry heated air to a temperature of 220° to 230° for one or two hours is sufficient for disinfecting purposes, does not injure the integrity or the appearance of ordinary clothing and bedding, but that a temperature of 250° is risky, may cause injury, and is therefore unnecessary.

In considering the practical application of heat to infective matter for disinfecting purposes we need not take into account the exceptional laboratory experiences of various observers who have recorded extraordinary degrees of heat withstood by some germs. These are little likely to be

noticed in future now that Tyndall has specified so clearly the conditions under which they are likely to have occurred. These rare instances are matters of curious interest, more for the naturalist than for the sanitary physician. The general evidence now accumulated is abundantly sufficient to warrant the conclusions recently laid down by Pasteur and Leon Colin in their report on disinfecting stoves made in 1880 to the Council of Health of Paris and the Seine. These are to the effect that while humid heat of 212° F. will certainly destroy all life in morbid germs, and all dangerous condition in virulent matter, a temperature between 212° and 230° F., whether dry or humid, may be fixed as sufficient for all practical purposes. A higher temperature is unnecessary.*

When selecting an apparatus for disinfecting by heat, there is a somewhat embarrassing choice between those which are more or less portable and sold in the ordinary course of commercial manufacture, and those which are erected on an extensive scale to special designs and for the needs of a large population—between those which are employed for occasional use, and those where the process of disinfection may be a matter of daily or of hourly requirement. In a description of my own apparatus, I will therefore best indicate the points wherein others in frequent use seem defective, and wherein my own contrivance seems to supply a desideratum. I say so much because I was led to realise my conception on the request of Major-General Collinson, architect to the Prisons' Commission for Scotland, who did not find in existing apparatus the economy and convenience or efficiency that were desirable and in his view attainable. He sought a portable appliance that could be easily fitted up in an ordinary apartment of a gaol, and be quickly brought into use for the few hours during which disinfection of clothing, &c., was occasionally required. Dr. Littlejohn, with whom I also freely discussed my plan, and to whom, as well as to General Collinson, I exhibited a small model, was clearly of opinion that the apparatus was peculiarly suitable for the service of gaols, workhouses, small hospitals, small country towns, and various localities where the use of disinfecting chambers was practically excluded, because of first cost usually more than doubled by the conjoined expense of a special building and subsequent considerable cost of working, irrespective of their shortcomings in real sanitary efficiency. Several medical officers of health, with

* See Addenda anent high temperatures.

whom I have since exchanged views, have added their cordial concurrence in this opinion.

The "principles" on which my chamber is planned have reference to the following points:—1. Portability, cheapness of construction, and economy in use.* 2. Improved method of conserving heat and of preventing subsequent waste of fuel. 3. Equality of heat throughout the chamber. 4. A maximum or any desired temperature maintained by a simple contrivance acting automatically. 5. Germs or other infective matter disengaged from infected objects, not permitted to escape into general atmosphere. 6. Infected objects not exposed to products of gas combustion, but only to pure air, conjoined with moisture when desired. 7. Gas consumption, regulated by automatic governor, to an efficient average quantity. These points I will now comment upon.

The sides, top, and bottom of the chamber form so many complete pieces prepared, adapted, and numbered in the workshop, so that they can be easily put together by any ordinary workman. The interior is furnished with the usual rods and hooks for supporting articles that are being disinfected. A powerful gas stove, of peculiar construction, exposing a large heating surface in its interior, traversed by pure air is connected inside or outside of the chamber, preferably on the outer side. It is then only necessary to attach the gas supply and lead the stove flue into the chimney of the apartment in which the chamber is placed.

The walls of the chamber consist of double casings made of thin plates of sheet iron, $1\frac{1}{2}$ inches apart, air tight, and containing only confined air. Each casing is further subdivided by partitions to prevent heated air accumulating in the higher compartments. Confined air is the best non-conducting medium, and renders unnecessary the packing material that is usually employed. Such packing, in the degree in which the material is solid, necessarily absorbs heat at the beginning of an operation and prolongs the time requisite for getting up the desired temperature. Such packing—the most useful of which is boiler felt—may, however, be applied to my chamber with good effect, when it is intended to be kept in use for many hours or days

* The above description of the chamber was read before the Congress of the Sanitary Institute of Great Britain, held at Glasgow, Sept. 1883. The company that manufactured the workshop model, shown at the Sanitary Exhibition of same date, has, with my permission, taken out a patent, and I am informed that the selling price of a chamber of 130 cubic feet inside capacity will be about £40.

at a stretch; otherwise it is unnecessary. A case of wood lining outside, with an inch space between it and the sheet iron, forms a second air jacket, and the wood, by its slow conducting and radiating properties, conserves the heat still further.

The bottom of the chamber is double, having about 6 inches deep of an under space, communicating by openings at one end with the general interior. The heating stove, whether placed within or connected outside, draws air from the under floor space through two separate pipes, one leading to the furnace, the second admitting air to the pure air caliducts of the stove. The under floor space therefore communicates at one end with the general interior of the chamber, and at the other end with the stove, and the air drawn from the under floor space divides into two currents, one of which passes through the furnace and ultimately escapes into the chimney of the apartment. The other and much larger current follows a separate course through the stove, where it becomes highly heated, and is discharged in a pure state into the chamber. It is not then permitted to escape outside, but is drawn down through openings into the under floor space and again led into the stove to be still more highly heated, and again discharged into the chamber, with each circulation gaining increased heat, until the maximum temperature desirable is attained. And so the circulating current goes on traversing and re-traversing the general chamber, from end to end, and from top to bottom, in brisk movement, as long as the stove continues lighted. The "principle" of action is analogous to that of heating by hot water pipes. This automatic movement of hot air in a circle ensures a nearly equal temperature throughout the chamber. The briskly moving current passes through the suspended clothing more effectively than a stagnant atmosphere can penetrate. It plays in the manner of a light breeze, rustling the garments, disengaging and floating off infective matter, while the rapidly successive impact of heated air molecules must oxidise more effectively than a still atmosphere.

The volume of air drawn through the stove furnace would suffice to fill the chamber more than twice every hour. That quantity is replaced by fresh air, continuously admitted from the exterior through a simple valve that prevents reflux. The much greater body of air that moves through the chamber in an automatic current would suffice to fill and empty it about 15 times within an hour, giving a complete

revolution and replacement about once every 4 minutes. All infective matter volatilised and floating in the larger current is therefore being continuously heated and re-heated within the pure air caliducts of the stove, while any matter floating in the smaller current that is being continuously drawn through the stove furnace and burned gases caliducts is thoroughly carbonised and conclusively dealt with. At the expiry of the time given to the operation, an aperture in the upper part of the chamber is opened to permit the escape of the confined air, which passes through a pipe that has its point of discharge underneath a solid gas flame, so that any infective matter still suspended in the air must pass through this flame. *Thus, from beginning till the end of the operation, all volatilised matter liberated in the chamber must pass through flame.*

I place much stress, and not unduly, on the paramount importance of imprisoning volatile infective matter throughout the entire period given to a disinfecting operation. There is otherwise a very fallacious security. The quantity of epidemic scales shed from the skin of patients affected with typhus, scarlatina, small-pox, and other eruptive fevers throughout the desquamative or convalescent period is very great, and these, together with the more subtle or less visible emanations exhaled by the skin or breath, or the grosser discharges from typhoid or diphtheritic patients, contain the matter that makes those diseases communicable. I have seen the shirts and other clothing of such patients, when held up and briskly shaken, discharge clouds of contagious dust similar to what takes place in shaking a flour bag. Now this infective matter may be dried and exposed to the air for weeks together, and yet lose little or nothing of its virulence. And this dust constitutes the infective particles or germs that we dread should float from a sick room into the adjoining apartment of a dairy or farmhouse where it may settle in the milk vessels—that we apprehend from the association of our children with schoolmates recently convalescent or coming from an infected house—that we fear may be suspended in the atmosphere of a cab that has conveyed an infected patient. How evidently necessary it therefore is that in a disinfecting operation there should be provision made for following up to utter extinction such contagious matter. The facts that have within so recent a period been adduced, and that since are daily illustrating the vital importance of the “germ theory,” were not in the prevision of those who designed the gas disinfecting chambers at present in frequent use throughout

the country. There is not in any of them any provision for such heroic treatment as I am advocating. In some, the infected clothing is merely hung up in a chamber traversed by a current of hot products of gas combustion that enters at the bottom and passes instantly out at the top. The shirt or blanket may be detained for a conventional period of two hours or thereby, but any volatile matter that is disengaged is instantly swept off into the general atmosphere. The shirt or blanket is itself disinfected, and may afterwards be worn with impunity, but where do the infective "particles" alight? They have not been detained for two hours, nor for as many minutes. They have not been subjected to the necessary temperature during the necessary period of time, nor for any notable period of time. They cannot under a momentary exposure to heat of 230° or 250° have been rendered inert. They have simply been blown away to join the idle wind that wanders where it listeth; and we never can know what becomes of them during the weeks, or it may be years, that they retain their deadly properties, although we may conjecture when we meet epidemic and contagious disease springing up in some locality under inexplicable conditions. Dr. Henry detained his cow-pock, scarlatina, and typhus matter within his heated laboratory oven for *hours*, proving, as he cautiously proceeded, that time was an all-important condition in disinfecting by heat, that sometimes a duration of exposure for one hour, sometimes for two hours, was insufficient, and that where he stopped short the contagious matter retained its potency. All subsequent observers have followed in the same lines, and confirmed substantially his conclusions.* When Pasteur, Tyndall, and others boiled the germs on which they operated, they found at one time one hour, at another time three hours too little. But we now know, through the teachings of Tyndall, that at the beginning of a heating operation there may be germs in such an embryo state that heat of a certain duration only stimulates their growth a stage, and if at this stage the exposure to continued heat ceases the germs retain their vitality, although—as shown by Pasteur—in a frequently "attenuated" condition that impairs their subsequent activity or virulence. Heat must therefore be long continued, or it must be renewed more than once, or it must be applied in the form of actual flame, a verification of the old adage, "fire purifies all." Less capable observers than Pasteur and Tyndall stopped short in their process of boiling the liquids they assumed to have been steril-

* See Addenda.

ised by one boiling operation, and when afterwards vital organisms appeared in the liquids they were asserted to be examples of "spontaneous generation." Let it be assumed that in the experiments of Pasteur and Tyndall there had been permitted to boil over from their flasks a number of germs not yet sterilised, these would have dried up and afterwards have become capable of being developed through ever active agencies. What did occur in the fallacious observations referred to, and what might occur, are conditions analogous with those which obtain in a chamber where volatilised *contagia* are floated from off the surfaces of infected clothing and wafted into the general atmosphere on a strong up-rushing current of burned gases. The best known of these chambers is in its mechanism fashioned with an ingenuity that reflects credit on its inventor, and from its commercial success has been honoured with imitations; but that chamber was, in its "principle of action," designed eighteen years ago, and, consequently, before the "germ theory" had become an accepted fact. In the light of our present knowledge that chamber, and all others of like "principle," are behind the time.

It is not that products of gas combustion have, or are alleged to have, any destructive effect on germs, or any effect whatever apart from their heated condition that differs from pure air or a mixture of air and watery vapours. It is, on the contrary, open to surmise that certain products of gas combustion—certain tar products—may actually have a temporary conservative effect of the kind that Dr. Dougall of this city showed to be produced by the vapour of carbolic acid on vaccine lymph. The variations in the products of coal gas combustion, according as that is more or less perfect, and the variability in the composition of coal gas, its impurities, and the like, make this surmise a point worth consideration. Dr. Dougall, whose researches on chemical disinfectants are in extent and original conception second to none, is of opinion with me that the influence of burned gases is not only probably but very likely of the nature I have suggested. But assuming that they have no influence either for good or for evil so far as destructive action on germs is concerned, it still seems to me that to avoid pure air and to make choice of an atmosphere contaminated with the products of gas combustion is something equivalent to a preference for dirty water before clean water for washing purposes. It might be tolerated if no other method of applying heat was available, and it is an extenuation if used in the belief that exposure to the burned gases of gas coal will do no harm. But on this latter point I have

grave doubts, and if compelled to give over my property for disinfection I would be very fearful of the results of exposing a piece of fine lace, a delicate coloured silk fabric, the valued photograph of a deceased friend, a precious letter, or an important law document to be played upon for a couple of hours by a strong current and heavy atmosphere of burned coal gas.

Setting this point aside, it is deserving of note—although the least of probable evils that belong to the use of such chambers—that the waste of heat, and, consequently, of fuel, is so great. The hot products of combustion escape in enormous quantity, carrying off heat that has been only partly utilised, and this waste of heat is aggravated by the method of burning in which the rush of inflamed gas is accompanied by a practically unlimited quantity of unnecessary cold air that mixes with the hot gases, dilutes and cools down their temperature, and renders one-half or two-thirds of the heat ineffective. Instead of the gas being burned with about ten volumes of air to one of gas, the theoretic proportion, or even twenty volumes, which is the practical limit aimed at by all who have studied the laws of coal and gas combustion, I have estimated that from 150 to 300 volumes of air are admitted into such chambers for each volume of gas. But so little consciousness does there seem to be of extravagant waste on the part of the makers that I have seen a letter written from one who refers to 50 or 100 cubic feet of gas per hour as the required quantity for his apparatus, and as a quantity “not worth consideration.” And yet a chamber of equal capacity can be equally heated with pure air by the use of 20 cubic feet of gas properly burned and properly applied. Before leaving this question of *pure air* versus *air contaminated* with burned gases, I may plead that while pure air can have no hurtful action on clothing, or other infected objects, it has on the other hand assuredly an oxidising and destructive action on infective matter. Still further, let me urge that there can exist no valid reason why the same chamberful of air, when once heated, should not economically be made to do duty again and again, in the manner of hot water warming apparatus, more especially when the heat can be kept up to give all the effect that heat can give by the use of one-third or one-fourth of the gas fuel that in contrasted arrangements is *avoidably* wasted.

I turn to a description of the means I employ for maintaining a desired maximum temperature. A thermometer fixed inside the chamber, but visible outside, indicates the heat.

A single Arnott chimney valve, specially balanced and regulated, supplies every other necessary requirement. This valve consists of a thin leaf of metal resting with a fine edge upon a delicate balance socket. A rod, with a screw turned upon it, and having a weight at its extremity, is attached to this balanced leaf, and by rotating the screw the weight is shortened or lengthened from its fulcrum. The principle of the valve is that of a balance having at one end the elastic force and pressure of air confined at 250° F. (or any other temperature that the valve is weighted to withstand the elastic force of) and at the other end the equivalent force or counterpoising weight of metal attached to the valve. When the air becomes heated above 250° F. the elastic force and pressure upon the valve are increased, the valve yields and the heated air escapes until once more the pressure of the air and the weight of the valve become equal. The adjustment of the valve is made when the thermometer reaches 250° F. (the temperature at present assumed for illustration), and it is effected by simply turning the milled head which, for convenient manipulation, is attached to the screw rod. When the valve is perfectly vertical at 250°, preventing all escape of heated air, but yielding at 253° F. or thereby, the adjustment is practically perfect, and requires no further attention for that temperature. By this contrivance I dispense with costly arrangements easily deranged, and in practice not admitting of ready adaptation to varied standards of temperature that may be desired, while other automatic arrangements when out of order can only be repaired by specially skilled workmen.

To meet the requirement that has arisen from recent observations showing that moist heat is more effective than dry heat, I employ a simple provision whereby the chamber is charged with watery vapour, subject to the same control as regards temperature as in the case of dry air. A shallow vessel, containing a small quantity of water, about 16 oz., is placed in the line of the entering hot air. The water evaporates and the moisture condenses on the colder clothing, ultimately becoming steam of the elastic force proper to a mixture of air and moisture at 250° F. Should the temperature exceed 250° F. the valve yields precisely as in the case of dry air alone. For in all cases the sum of the elastic forces of a mixture of moisture and of air is equal to the weight of the atmospheric pressure which has its equivalent in the weighted balanced valve,

the vapour taking always the force due to its temperature, and the air making up the complement. The arrangement is entirely free from the cost, difficulty of management, and dangers attendant on the great elastic force of steam generated in and delivered from a high pressure boiler.

In the application of moist heat it is desirable that the watery vapour should be generated at the early part of the disinfecting operations, and while the clothing or other infected objects are at a relatively low temperature, so that the moisture may become condensed upon them, and afterwards it is only necessary that the temperature of the vapour does not descend below 212° F. Instead of a water vessel the object may be very well effected by suspending a piece of woollen blanket of about half a pound weight wrung out of water, of which it will retain about 1 lb.; and it may be still better effected by simply sprinkling the infected articles, pretty liberally with water and directing that they are not to be removed from the chamber until quite dry. Under all circumstances it will detract from the efficiency of the moisture if that moisture is delivered at first of a high temperature, say 220° and upwards, because at these temperatures it approaches the condition of a perfect gas and will only act as dry heat.

After the strictures I have passed on any mode of disinfection by heat that permits the escape of volatile *contagium* into the atmosphere, it is only due that I should state that disinfecting by heat in a chamber which confines all volatile matter until the close of the operation, is carried out in various apparatus in frequent use. Dr. Esse, of Berlin, who has given much attention to the subject, makes this the principle of several chambers constructed under his direction, at the Hospital at Moabit. In one arrangement the infected articles are placed within a cylinder which is itself contained within a larger cylinder, the space between being filled with steam, and thus the inner cylinder is heated. There is no communication between the outer and inner cylinder, and the latter contains dry heat only. This is precisely the arrangement, on a larger scale, devised by Dr. Henry in his small laboratory apparatus 50 years ago. In another form Dr. Esse's chamber is lined or traversed with steam pipes. M. Vallin, in his comprehensive treatise on Disinfection, objects to Dr. Esse's chamber that the air is stagnant and cannot have the heat penetrating property of hot air in motion. He suggests—and the suggestion is applicable to other apparatus—that at a stage of the opera-

tion a stopcock should be opened admitting a jet of vapour for 15 to 45 minutes, having a temperature of about 212° F; this vapour to be afterwards got rid of by ventilating openings, and the operation completed by dry heated air, so as to thoroughly dry the infected articles. He believes such an arrangement to be perfect. I think it will be evident that in my chamber the process that M. Vallin recommends is practically ensured, with this superadded advantage, that ultimately all air or vapour that has been in contact with the infected matter is made to pass through a furnace.

Mr. W. Lyon, a London manufacturer, supplies a machine that confines all volatile *contagium* till the close of a disinfecting process, and also aims at carrying out the "principle" of moist heat; and as it professes likewise to introduce an entirely novel "principle" of action peculiar to itself, of which moist heat is the characteristic, that claim requires the detailed examination I give in an Addendum because of its novelty, and as I believe of its fallacy.

In conclusion and on a careful consideration of the entire subject of disinfection by Heat, I feel warranted in laying down the following axioms, of which the first is a truism.

1. That as contagious matter, volatilised and diffused in the atmosphere, is the chief condition that propagates contagious disease, it follows that the best preventative consists in excluding the entrance into the atmosphere of such contagious matter.

2. That any apparatus for disinfecting by heat is insufficient that does not make provision for detaining volatile contagious matter, and subjecting it to the same degree of heat, at least, and the same duration of exposure that is found practically necessary in dealing with infected clothing, bedding, and other objects.

3. That the alternate use of moist and of dry heat, or of both conjoined, is preferable to the use of dry heat exclusively.

4. That in disinfection by heat, the immediate and certain destruction of volatile contagious matter can only be ensured by passing such matter through the flames of a furnace.

ADDENDA.

In 1860 it was announced as a discovery by Schröder, that "the atmosphere contains an active substance which induces the phenomena of fermentation and of putrefaction, and

which is decomposed by heat and arrested by filtration." Although why muscle, yolk of hen's egg, and milk should occasionally putrefy in spite of filtered air alone being permitted to come in contact with them was a point most difficult to explain, and one which Schröder admitted was not in perfect accord with his theory. Pouchet, about the same time, cited several experiments which he considered crucial, and which he performed with the special object of settling the question of spontaneous generation, and he affirmed that the results of these experiments were perfectly conclusive of the spontaneous origin of animal organisms. To test this doctrine Pasteur made very extensive investigations (published 1860), which resulted in establishing the fact that the air at all times contains microscopic organised corpuscles, which may be collected by filtering it through gun cotton, dissolving the cotton in ether, and allowing the ether to evaporate spontaneously. Pursuing his investigations into the origin of ferments and putrefaction, he, in 1863, announced that his previous experiments had entirely disposed of the hypothesis that fermentation can be effected by the influence of decomposing albuminous substances, and affirmed conclusively that the sole agents in the process are animalcules or their germs, termed by him "vibrios," of which fact he adduced examples. From this date the "germ theory" made rapid progress, although strenuously resisted up to a very recent period by Bennet, Bastian, and other very able observers.

Up till a comparatively recent date, the highest temperatures short of actual injury to infected clothing, &c., have been employed or thought desirable; while, by tradesmen who vend disinfecting apparatus, a minimum standard of 230° to 250° F., or even higher, has been assumed and taught as necessary, and the power of producing temperatures of even 300° or 450° has been vaunted as a claim to recommendation. It should, however, be very obvious that in *all* gas heated chambers the *degree* of heat that can be reached above the highest heat that is necessary—viz., 230° F., is a mere matter of so many extra feet of gas, and therefore implies no superiority in the apparatus, because an equal degree is attainable in *any* gas heated chamber. But the point that deserves consideration in this relation is the expenditure of gas at which any temperature that is desired can be attained and maintained.

The important distinction that obtains between the vitality of the spore, or germin, or particles, and the organism which is developed from the spore, is all in all in considering the practical application of heat in the process of disinfection. For the quality, degree, or duration of the heat which destroys the vitality of bacteria, torula cells, spiral fibres, and fungi fails to destroy the spore of the bacterium. We have quite a cloud of witnesses as to the effects of heat on germs and their offspring, for the long contention on the doctrine of spontaneous generation that has so very recently received its quietus, brought into the field of practical investigation a host of observers. A very favourite method of experimentation consisted in heating or boiling infusions of vegetable or animal material, in which bacilli, bacteria, and vibrios are so readily and so abundantly developed. On the point merely of the degree of heat that will destroy bacteria, there is a pretty general concurrence of experience, and Pasteur, Chauveau, Calvert, Roberts, Tyndall, and many others have shown that from 140° to 212° F. is a degree of temperature that few developed organisms can sustain. Huizings agrees with Cohn that bacteria are killed by 10 minutes' boiling; but, against this general assertion, Roberts has shown that the length of time varies greatly, according to the nature of the matter that develops the bacteria—one kind requiring 20 minutes', another 40 minutes' boiling. If, however, the infusion is rendered alkaline, Roberts alleges that it was not sterilised until one or two, or even three hours' boiling. Mr. Dallinger and Dr. Drysdale report that while certain living septic monads were killed by a heat of 140° , there were spores of one variety that generated after exposure for 10 minutes to 200° . Instances are recorded of certain spores resisting for hours a temperature of 400° F. The resistance to destructive agents of certain spores is very extraordinary. Koch relates that the spores of splenic fever, a disease of cattle that occasionally affects, and it may be in a fatal form, the human subject, retained their infective vitality for an indefinite period in spite of all kinds of mal-treatment. They could be reduced to dust, wetted and dried repeatedly, kept in putrefying liquid for weeks, and, nevertheless, at the end of four years, they still displayed an undiminished virulence. Such experiences give point to the principle for which I am contending—viz., that in disinfecting by heat the only effective application for the immediate destruction of infective matter, suspended in the air, is to subject it to the action of flame.

I am not aware of any experiments, exactly similar, or so direct, as those which Dr. Henry made with infective matter of cow-pock, scarlatina, and typhus. Those with cow-pock matter have been repeated, but the others have not. He dealt with what he recognised only as infective matter in the pores, and without thought or reference to germs. Our conclusions, therefore, regarding disease germs are drawn from a different class of observations, and mainly from the known analogies that link together the entire animal and vegetable kingdom. The number of species and the number of individual varieties of germs are very great, and a distracting multiplicity of names have been invented, and are being continually manufactured and applied by different observers in the field of investigation that is covered by the germ theory. And it is perplexing, even to a well informed student of modern scientific literature, to track out the intended meaning of some writers who, within half a page, will make a reference to half-a-dozen names, all with little apparent discrimination, and often with little knowledge that they are dealing occasionally with mere synonymes. I give here a cluster of these ingeniously varied designations of minute organisms:—Cells, monads, germs, seeds, spores, sporules, torula, spirilla, vibrios, bacteria, bacilli, zooglœa, micrococci, microzymes, microphytes, microbes, microzoaires, entophytes, saprophytes, infusores, contagious corpuscles, particles, &c., &c.

Washington Lyon's Disinfecting Apparatus is substantially the same as Dr. Esse's, but the cylinders communicate through a stop-cock. The outer cylinder is first heated by the admission of *saturated* steam with the effect of heating at the same time the inner chamber. The objects to be disinfected are then placed within the chamber and the cover tightly closed by a number of screws, an operation requiring about ten minutes, during which the imprisoned air and the infected objects are getting heated. The stop-cock of communication is now opened and steam of about 260° F. is admitted. If any condensation occurs, provision is made for that being immediately carried off by drainage pipes. But it is stated that "*the great object of the casing [i.e., the heated outer cylinder] is to prevent condensation of the steam within the chamber, for if such a condition were to arise, the objects would become wetted.*" Nevertheless, the theory of the maker is that "the steam, on coming into contact with the colder infected objects,

instantly condenses upon them until all are damp and moist," and "when the pressure is removed the *water*, no longer restrained, evaporates and the objects remain in an *almost dry condition.*" M. Vallin, when commenting on this phenomenon says, "this is what we do not very well understand" and his difficulty claims sympathy. An eye witness to the process whose evidence is adduced by the maker says, "on opening the door the several articles above named [*i.e.*, various fabrics and a letter in coloured ink] were to our surprise and satisfaction perfectly dry!" Now there is here a blowing of hot and of cold, a condensing, a wetting, and a damping, conjoined with a provision against condensing or wetting that need to be reconciled. My explanation is that the maker's theory—a very pretty one by the way—is altogether based on a fallacy. I feel assured that no condensation of steam can take place unless slight and momentary at the close of the process when the articles are being removed from the chamber. At the instant when the cover is swung aside there will take place a rush of cold air, a portion of steam will be condensed, and the remainder dissipated. For steam, so far from being a moist fluid, is perfectly dry as long as it retains the elastic force due to its temperature, that is—so long as the temperature does not fall; and in this case the temperature is kept up by the hot outer casing and the continuous supply of hot steam, from beginning till the end of the process. It has been pointed out by a great authority that "steam is of so drying a nature that it cannot be contained in wooden vessels (however well-seasoned they may be) without drying them and making them shrink till they crack and fall to pieces. Steam is never moist." When steam is condensed it becomes water itself, and the mere removal of pressure will not evaporate water, although it will permit the dispersion of steam when liberated from pressure. If the articles placed in the disinfector under consideration, are ever penetrated with steam that has condensed, then assuredly they are wetted with water as effectively as if cold water had been poured upon them, and that water will only evaporate under a separate drying operation. If the chamber had been filled only with saturated steam, and if that steam had been isolated from water in a space of fixed dimensions, and if the temperature had been permitted to fall, instead of being steadily maintained, there would then have been a certain amount of condensation, although very trivial, because of the little margin of fall that could be

possible under the condition. But the chamber is not filled with saturated steam, but with a mixture of hot air that previously filled the chamber, conjoined with as much moisture from the steam as the air can absorb—viz., about $\frac{5}{8}$ of the given weight of the mixture. The weak point in the theoretical principle of this apparatus consist in

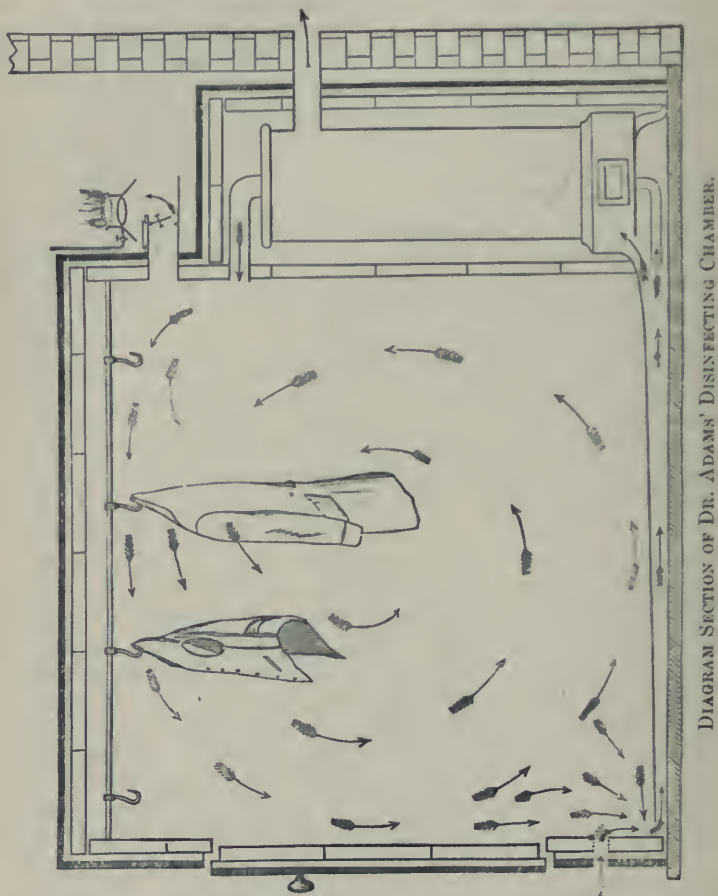


DIAGRAM SECTION OF DR. ADAMS' DISINFECTING CHAMBER.

overlooking the *perfectly dry gaseous nature of steam* while retaining the elastic force due to its temperature, and in applying to a mixture of air and moisture the physical laws applicable to saturated steam.

It must not be supposed that I am disparaging the real

efficiency of the apparatus *quantum valeat*—that is as a *dry heat* apparatus. I think it an improvement on those of Dr. Esse and Dr. Henry, but the quality and action of the heat are precisely the same as in these or any other dry heat appliance, where dry air alone is employed. The penetration of heat will be quicker because of the pressure, and that is all. But it will lead to a fallacious security if the alleged property of *moist* heat is made the ground for materially shortening the process. I say so much because I am told by an official having charge of the erection and experience of the working of one of these machines, that half an hour was a customary period to give to one operation, but that ten minutes would really suffice. Against that belief, and against operations conducted under that belief, I enter a protest and give warning. The duration of exposure should be nearly the same as in any dry air apparatus of the same temperature. Dr. P. Bate of London thinks well of this machine after having seen it in action, admitting that “it has the drawbacks of being more costly than others, together with the necessity of requiring an able and experienced attendant,” but he adds, “the rapidity and certainty of a sufficient heat are a sufficient compensation.” With regard to the “rapidity” I must lodge this *caveat*, that a furnace must be got into action and a steam boiler be in full delivery before the disinfecting process can be commenced. I had it in view to make an *experimentum crucis* to settle beyond any cavil all question as to the alleged moisture of the heat under which it operates, and with that object I have on two occasions made visits to Belvidere Hospital in the suburbs, where one of these machines is in course of erection, but it is not yet in readiness and my intended experiment is delayed.

CASE OF SEVERE BURN, FOLLOWED BY INTES-
TINAL HÆMORRHAGE (DUODENAL ULCER?)
WITH ULTIMATE RECOVERY.

By WILLIAM BAXTER, M.D. (Edin.), Hurlford.

(Read before the Medico-Chirurgical Society, 4th May, 1883.)

PRESIDENT AND GENTLEMEN,—At the suggestion of Professor Gairdner, I have been induced to give a short account of the following case before this Society:—On the afternoon of

Tuesday, 6th February, G. S., æt. 28, unmarried, manager to the Eglinton Iron Co. here, while standing on the tunnel head, was severely burnt on both hands, face, back part of neck and lower part of head, by the slipping of an iron furnace. From the account of intelligent witnesses, he was about three seconds enveloped in the flame, the temperature of which would be about 1,500° F. On my arrival at his house, about ten minutes after the occurrence of the accident, I found him suffering very much from pain and shock, and there was a ghastly pallor about him. I immediately ordered him half an ounce of brandy in milk, and a teaspoonful of the solution of the muriate of morphia, and covered his burns instantly with flannel. I then dressed the burnt parts *seriatim* as quickly as possible with a liniment, composed of equal parts of olive oil and lime water, with two and a half per cent of liquid carbolic acid, laid on a cotton rag; a layer of cotton wool was put over this, and over all a sheet of gutta percha tissue. Teaspoonful doses of the solution of the muriate of morphia were continued every hour till the pain was considerably relieved; and the pain did not disappear entirely till about forty-eight hours after the accident. During the evening he took some milk and soda water.

7th February—Morning.—Temperature 99·8°; pulse 100. Patient continues to have some pain, especially in the hands. Takes a little milk and soda water, and chicken tea.

8th February—Evening.—Temperature 100°; pulse 100. Patient not resting quite so well; symptoms of irritation of the stomach setting in, and has vomited twice. Ordered ice for the patient to suck, and liquor bismuthi, and dilute hydrocyanic acid to be given every four hours. The bowels are very constipated, and patient is to have five grains calomel.

The patient having received a teaspoonful of liquor morphiæ muriatis half-an-hour before my visit, so as to soothe him, I proceeded with the aid of my assistant to dress the hands under the spray (carbolic acid 1-100.) On taking off the dressings the whole skin seemed to come away from the fingers, forming a cast, much the same as when a person draws his glove off his hand. The fingers were sticking to each other, and the whole surface of the hand was in a state of inflammation, with some suppuration. The fingers having been gently torn asunder, the entire surface affected was washed with tepid carbolic lotion, one to sixty (1-60.) The hands were covered with boracic acid lint, on which was spread a layer of the following ointment:—

R	Acidi carbolic liquefacti,	.	.	ʒiii.
	Olei Ricini,	.	.	ʒi.
	Axungiae,	.	.	ʒiv. Misce bene.

Pieces of boracic lint, similarly treated, were placed between the fingers and between the thumb and forefinger, to prevent webbing and agglutination. Over this a layer of salicylic wool was laid. Both hands were then laid on a paste board splint, and the whole covered with a sheet of gutta percha tissue and kept in position by a soft cheese cloth bandage. After this the hands were placed in an elevated position and kept at rest. This ointment is a modification of that mentioned by Mr. Bryant in his *Practice of Surgery* (vol. I, page 155; third edition). I have found it very useful in the treatment of burns. It assists greatly in the separation of the sloughs, and renders the sore antiseptic; it prevents, to a great extent, the formation of exuberant granulations, and when the cicatrix is fairly formed it serves to lubricate and soften the tissues, thus compensating for the loss of the sweat and sebaceous glands. The salicylic wool absorbs any discharge, and renders it antiseptic.

9th February—Morning.—Temperature 99.5°; pulse 100. Patient is very sick, and has suffered much during the night from vomiting and flatulent eructations. Allowed a limited quantity of ice. Dilute hydrocyanic acid and bismuth to be continued. Ten grains sulpho-carbolate of soda to be given every four hours. A teaspoonful of concentrated chicken tea every half hour; no other food allowed.

Evening.—Patient's general condition similar to that in the morning. Same treatment continued. The dressings of the face, head, and neck were changed and re-applied, similarly to those of the hands, already described. Some sloughs of skin were carefully separated from both ears. There was a considerable quantity of pus on the surface of the sore. The eyeballs were not affected, although the lids of both eyes were.

10th February.—Vomiting still continuing, almost nothing being retained on the stomach; appearance of vomited matters that of muco-tenacious stuff, with a little bilious matter; flatulent condition considerably improved; sickness still continuing, but does not complain of any acute pain in the region of the stomach, bowels having been moved only once since the accident. Six grains of calomel were given by the mouth, followed by an enema of soap and water. No food allowed, as the stomach was not in a condition to retain anything. Sinapism, size of watch face, applied to pit of

stomach and allowed to remain twenty minutes. None of the sores were dressed to-day. Temperature and pulse same as yesterday.

11th February—9 A.M.—Temperature normal; pulse 75. Patient had two moderately soft stools during the night; no vomiting since the early morning; feels comfortable and well, and inclined to talk. A teaspoonful of chicken tea to be given every fifteen minutes, which was retained. Only one hand dressed this morning, as I expected Dr. Hector C. Cameron of the Western Infirmary, Glasgow, in the evening. There was a little discharge of pus, and some sloughs separated during the dressing of the hand, which was done as formerly described.

The patient continued in this comfortable condition, with no vomiting or flatulent eructations, till 4 o'clock in the afternoon, when he had another moderately loose stool, followed by hæmorrhage from the bowel. Simultaneously with the hæmorrhage the patient felt cold and chilly, and complained of a severe and acute pain, of a spasmodic character, in the region between the cartilages of the eighth and ninth ribs on the right side and the umbilicus. This region, however, was not decidedly tender on palpation or percussion, and there was no tympanites at this time or at any other time during the progress of the case. A warm bran poultice was immediately applied over the region of the stomach, and in the hope that I might be able to check the bleeding through the action of the sympathetic system of nerves, I attempted to throw up a large enema of cold water, plumbi acetatis, and tinctura opii, which was instantly repelled by the bowels. I thereupon put a morphia suppository ($\frac{1}{2}$ grain) into the rectum, which relieved the pain considerably.

The blood continued to flow slowly from the bowels, but so constantly that the patient would sometimes lie on the bed-pan for half-an-hour at a time. The temperature had now risen to $102\cdot3^{\circ}$, and the pulse to 120, weak and thready. The blood was of a dark colour, with long strings of mucus floating in it as if derived from the lining membrane of the intestine. The patient was now in a very weak and prostrate condition, and as the stomach was just recovering from an attack of sub-acute inflammation, and there was no immediate prospect of anything being able to be done by the rectum, I determined not to give ergot by the mouth, preferring to leave that channel available for support alone. The hypodermic injection of ergotine I thought of; but it is a painful practice, and I had seen so much exhaustion arising

from the multiple abscesses which it sometimes caused, that I elected not to try it; in short, I resolved not to add any fresh victims to that "majority," which already owes so much to the *nimia medicorum diligentia*, but rather to stand by and carefully watch the action of the *vis medicatrix nature*.

The patient took a teaspoonful of chicken tea every fifteen minutes during the afternoon and evening, and at 10 P.M. Dr. Hector C. Cameron saw the case along with me. One of the hands and the face were now dressed as before described. The skin of the fingers seemed totally destroyed, and the muscular tissue and tendons could be distinctly seen.

At this time the general condition was very much the same as it was shortly after the hæmorrhage in the afternoon.

Diagnosis.—Probable ulceration of the duodenum.

Prognosis.—Gloomy and doubtful.

The hæmorrhage still continuing, I ordered, about midnight, ten drops of liquid extract of ergot to be given every two hours, with instructions that should it give rise to sickness or a tendency to vomit, it was to be discontinued. It was given four times, and sickness coming on it was dispensed with.

12th February—8 A.M.—Temperature 102.2°; pulse 125. Hæmorrhage neither so copious nor so constant, and during the course of the day became much less. The patient was able to take a teaspoonful of chicken tea every fifteen minutes during the night, but his condition now was that of extreme weakness. Now and again he would get a little delirious. From this time he was able to take larger quantities of chicken tea, and with the diminution of the bleeding he steadily improved. At 2 o'clock in the afternoon his temperature was 101°, and pulse 120, and not so thready as in the morning. With the diminution of the blood, it became much more arterial looking in type than it had been at the earlier stages.

Professor Gairdner, Glasgow, saw the case with me at 6 P.M., when the condition was somewhat improved, and the hæmorrhage ceased of its own accord after he left. From first to last, sixteen or eighteen ounces of blood would pass by the bowel. There was no pain on palpation, no pain now of any kind, and no tympanites. The patient sometimes complained of tenesmus.

Diagnosis.—Professor Gairdner did not make a definite diagnosis.

Prognosis.—General condition favourable. Bowel lesion uncertain.

The patient was now able to retain a little nourish-

ment on the stomach in the shape of chicken and beef-tea, and beef-tea with oatmeal prepared according to directions in No. 10 of Ringer's *Dietary for Invalids*.

14th February.—Temperature normal; pulse 100. The dressings of both hands and face were removed. Some small sloughs were carefully cut away. The sores were looking healthy, with no pus, little or no discharge, and no putrid odour. The dressings were changed as formerly described, but in addition a crossbar of pasteboard was placed along the distal end of the splint. The tips of the fingers were laid on this crossbar, and the bandage was applied more tightly than before. This was for the double purpose of keeping the fingers perfectly straight and preventing the granulations from becoming exuberant.

The patient continued to take nutritious fluid diet, and was getting quinine internally, and occasionally the sulpho-carbolate of soda, when the condition of the stomach required it. This happy and improving state of things continued till my visit on the morning of 21st February. During the previous night the patient had insisted on getting from the nurse champagne, oranges, and water in considerable quantity, with the result that sub-acute gastritis was re-established in a worse form than before. I at once discontinued all food and drink, and supported the patient solely on nutrient enemata every four hours, the composition of which was as follows. Peptonised fluid meat (Darby's) two and a half ounces, a dessert-spoonful of brandy, and ten grains lactopepsine. The enema was given in the usual way, the rectum having previously been cleaned out with tepid water. Upon the expulsion of the enema prior to renewing it, it possessed a distinctly faecal odour. The patient seemed to hold his ground well with this, and after each enema he said he felt stronger and better for it. His temperature during the whole time of his being thus artificially supported ranged from normal to 99°, and his pulse from 115 to 120 and weak.

24th February—Evening.—Changed the dressings after an interval of ten days. There was no pus, little or no discharge, and no putrid odour. During the dressing about half an ounce of blood was lost from the granulations oozing. Temperature normal, pulse 114. Patient complains of a little pain underneath the jaw, caused by the formation of two small abscesses. For the last three days he has had nothing by the mouth, and as he seemed to be getting along well I resolved not to risk giving him anything for another day.

25th February—Morning.—The two small abscesses before

mentioned having fairly matured were opened antiseptically. In addition to enema every four hours, to have half a wine-glassful of koumiss (Dr. Jagielski's) every half-hour. He was a little delirious during the night.

Forenoon.—Patient very weak; can't move himself. Temperature normal; pulse 120, weak, and thready; delirium continuing, but not so much as during the night. Sordes are appearing on lips, gums, and tongue. Koumiss now given in wine-glassfuls every half-hour, and the enema every four hours as usual.

In the evening the sordes began to disappear. Temperature normal; pulse 118, not so thready as in the forenoon. The loss of about half-an-ounce of blood last night and the maturing of two small abscesses underneath the jaw this morning have had a very depressing effect on the patient.

26th February.—Delirium continued more or less during the whole night. Temperature normal; pulse 116. Koumiss is being given in larger quantity and is being retained. Patient a little improved and feeling stronger.

27th February.—Condition and treatment same as yesterday.

28th.—Temperature normal; pulse 110; no delirium during the night. Small quantities of chicken-tea to be given by the mouth, and enema every six hours.

1st March.—Koumiss, chicken and beef-tea continued. Enema given only twice to-day and for the last time. From this time he continued to make slow but steady progress till the time of writing (23rd April) he is able to be out of doors.

6th March.—Dressings changed. Left hand healed, with the exception of three small spots on the knuckles, and the soft part of the ball of the thumb, due to the pressure of the bandage and the weight of the hand lying on the pasteboard. The pasteboard splint was not re-applied. The fingers were roughly handled so as to break up any adhesions which had formed around the joints or on the tendons of the muscles or their sheaths, and passive motion ordered to be commenced cautiously and continued. Healing process not so well advanced in the right hand; granulations becoming slightly exuberant. Right side of face healing kindly, left side not making so good progress.

9th March.—Left hand quite healed; the dressings were not re-applied, but ordered hands to be frequently lubricated with almond oil so as to keep the skin soft and elastic. A loose cotton glove to be worn regularly as a protection from the

weather. During the day the patient has graduated wooden cylinders six inches long and varying in diameter from half-an-inch to two inches. These he keeps grasping and squeezing with his hand so as to prevent stiffening and promote free movement. During the night the hand is placed on a paste-board splint to prevent contraction, as the tendency to this is still very decided. The amount of webbing of the fingers is just perceptible and no more. The nitrate of silver stick was freely applied to the right hand and left side of the face and the dressings were re-applied. The local treatment was continued in this way, the dressings being changed every third day till April first, when I have noted that the left side of the face is quite healed, with a little ectropion of left eyelid.

12th April.—The right hand is now quite healed, with almost no webbing. Splints are still kept on both hands during the night to prevent contractions, and the graduated wooden cylinders are used during the day to promote free motion. At the second dressing it was thought that the entire thickness of the cutis vera was destroyed. This does not now appear to have been correct, for both hands and fingers were very hairy prior to the accident, and already (30th April) ten or a dozen hairs have made their appearance on the proximal phalanx of the middle and ring fingers of both hands, but nowhere else.

The constitutional treatment consisted of iron tonics with quinine; milk, animal soups, and easily digested and nutritious diet. If the above be really a case of ulcer of the duodenum with laceration of a blood-vessel in its course, then so far as I know it is the only case of recovery on record. Professor Gairdner, who saw the case along with me, after hearing that the patient was likely to recover, wrote me for a short history of the case, which I gave him. In his reply he writes as follows, of date 7th March, 1883.

"Dear Sir,—In reading over Mr. Curling's cases in the *Medico-Chirurgical Transactions* I am much struck with their close resemblance to Mr. S.'s case, and as not one of Curling's survived we must look upon his escape as a most fortunate one. Would it not, therefore, be right, under these circumstances, to draw up an account of the facts for presentation by and bye at our Medico-Chirurgical Society?"

When this complication in the course of burns was first pointed out by Long (*London Medical Gazette*, 1840), and Curling (*Medico-Chirurgical Transactions*, vol. XXV), it

was supposed to be invariably fatal. That this is not true is proved by the records of the *post-mortem* examination of a few cases, dying of other complications, where cicatrised ulcers were found in the duodenum. Mr. Curling gives one such case—a young woman—where death was due to exhaustion eight weeks after the burn. Timothy Holmes gives another, where a child, three and a half years old, died on the twenty-eighth day after the burn, from pneumonia and suppuration, hastened by diarrhœa. From the fact that cicatrised ulcers are not infrequently found in the duodenum of people dying of other complications, we may infer, that ulcer of the duodenum *per se* is not necessarily fatal; on the contrary, it is occasionally discovered during *post-mortem* examinations in cases where it was not even suspected during life, and, I believe, its existence during life is frequently overlooked. My own case, so far as I know, is the only case of recovery on record, where the existence of ulcer of the duodenum, accompanied with hæmorrhage from the bowel, was diagnosed during life. That my case would have died had it occurred during the days of Curling I have no reasonable doubt. The principal factors in the treatment which, so far as I can see, saved the life of the patient, were, in Curling's time, unknown to the profession.

In the first place, had the burns not been treated antiseptically, we would have had inflammation with prolonged suppuration set up, giving rise to such a drain on the vital powers that the life of the patient, under the circumstances, could not have been supported. For, when we look at the notes of the case, we find "no pus, little or no discharge, and no putrid odour," dressings not changed on one occasion for ten days; and, although the pulse was 120, the temperature was normal or nearly so, clearly showing that there was no excess of combustion or waste going on in the body. All, therefore, that is required is to keep in the vital spark. Now when we consider the small loss of blood—about half an ounce—which the patient sustained during the dressing on the evening of the 24th February, and the two small abscesses underneath the jaw, which fairly made their appearance on the morning of the 25th, and the very marked depressing effect which these had on the patient that morning, an effect which well nigh proved fatal, and when we consider what a small drain this is on the system compared with the drain which would inevitably have occurred had the case not been treated antiseptically, I think there can be little doubt that the case on this score alone would have ended

disastrously. In the second place it has been well made out that, so far as supporting life by the bowel is concerned, both in the case of dogs and in practice in the case of the late President Garfield, and other cases mentioned by Dr. Bliss, peptonised fluid meat is much superior to ordinary beef-tea.

And in the third place, koumiss certainly remains on an irritable and inflamed stomach when nothing else will, and has been the sole means of supporting life for several weeks.

To sum up, there does not remain a reasonable doubt in my mind that, but for the assistance received from each and all of these three—the antiseptic system, the peptonised fluid meat, and the koumiss—all be it remembered introduced to the notice of the profession, long since the time of Curling, I say but for each and all of these, my patient must, without doubt, have succumbed.

CURRENT TOPICS.

GLASGOW SOUTHERN MEDICAL SOCIETY.—The annual meeting of the Glasgow Southern Medical Society was held in the Society's Rooms on the 11th October, when the following gentlemen were elected office-bearers for the session 1883-84:—*President*, Robert Park, M.D.; *Vice-President*, Alexander Napier, M.D.; *Treasurer*, Edward M'Millan, L.R.C.S.Edin.; *Secretary*, David Tindal, M.B., L.F.P.S.G., 24 Abbotsford Place; *Editorial Secretary*, J. Stuart Nairne, F.F.P.S.G.; *Seal Keeper*, Thos. F. Gilmour, L.R.C.P.Edin.; *Court Medical*, J. Barras, M.D. (*Convener*), James Dunlop, M.D.; Thos. Lapraik, M.D.; John Gardner, M.D.; John Barrie, M.D.; *Ordinary Members of Council*, Hugh Miller, M.D.; A. Turnbull Smith, M.B., C.M.; Alex. Patterson, M.D.

REVIEWS.

A Manual of Obstetrics. By A. F. A. KING, M.D., Professor of Obstetrics and Diseases of Women and Children, Columbian University, Washington; and in the University of Vermont. London: Henry Kimpton. 1882.

THIS is a work of 325 pages which professes to give "an outline of the rudiments and essentials of obstetric science." We think it does so very fairly. There are few subjects mentioned in the larger manuals to which it does not refer, in a few words perhaps, but giving the gist of what is known about them. There are first of all about sixty pages on the anatomy of the parts concerned in pregnancy and parturition, and this is followed by five or six pages on development, the latter of which we feel perfectly sure no mere student will be able to follow; not that they are badly written, but that it is impossible to understand the different phases of development without illustrations or models.

In speaking of the treatment of abortion the author says, "So long as any part of the secundines is retained there is danger of hæmorrhage, and of septicæmia from putrefaction of the retained placenta, but occasionally it will be retained for weeks or even months without any bad symptoms. It is never *safe* to leave it. Should there be offensive discharges from the vagina (indicating decomposition), the vagina must be freely washed out two or three times a day with a weak solution of carbolic acid, f ʒij to water Oj, as a preventive of septic infection, but when septicæmic symptoms, such as chills, fever, vomiting, &c., are present, the carbolised fluid, in small quantity (ʒj-ij), must be *carefully injected into the uterus*, through a double canula, so as to insure its immediate return. If the os is closed, it should be dilated with tents before the intra-uterine injection."

In our experience a much more effectual and safe plan is that of exposing the cervix with a speculum, and passing strong liquid carbolic acid into the uterus by means of a Playfair's probe once every twenty-four hours. This not only destroys the fœtor, but stimulates the uterus to contract and expel the placental remains, and the quantity of liquid is too small to pass along the Fallopian tubes.

We think that urban practitioners should hardly be included when it is said that every physician going to a labour

case should "be compelled by law" to carry with him "always" "a pair of obstetrical forceps, fluid extract of ergot, hypodermic syringe, Magendie's solution of morphia, liq. ferri persulphatis, needles, needle-holder and sutures, male elastic catheter, Davidson's syringe, and a pint of sulphuric ether." This list, however, gives the junior practitioner a good idea of what he should have prepared in such a way at home that his "bag" could be sent for and got at very short notice.

In giving instructions to the student how to examine a woman in labour—which instructions, by the way, are very minute and good—there is no mention made of attention to his hands, by careful washing and the use of some antiseptic lubricant. This we think a somewhat serious omission, as, doubtless, many a woman has lost her life from the foreign matters introduced on the finger of her medical attendant, who, himself, did not suspect the dangerous condition of his hands.

In describing the four different positions of the foetal head the author does not speak of them as first, second, third, and fourth, but as right and left occipito-anterior and posterior. This method is becoming much more common in this country, and without doubt is the more scientific as well as sensible plan of nomenclature. The description of the mechanism of labour is very good and, considering its brevity, remarkably clear. A student with the bones in his hand and this description before him must be dull indeed if he fail to follow and comprehend it. In the section on the use of the forceps the following paragraph occurs:—"If the head is altogether *above* the superior strait and *moveable*, *i.e.*, not yet fixed in its position by any partial engagement at the brim, version should *certainly* be preferred to forceps." We differ from this conclusion, and think that a practitioner with good hands and skilled in the use of the long forceps would save more mothers and children by the careful use of that instrument than by version, and that the greater the pelvic difficulty the more marked would be the result. We freely grant that the safe use of the long forceps demands greater skill on the part of the operator.

While discussing the treatment of placenta prævia, the method of partial digital separation is spoken of, and the remark made that this method of treatment is most suitable for those cases where the placenta is placed entirely over the os. We have always been under the impression that these were precisely the cases for which Barnes' method was least suitable. If the placenta be attached to the cervix only on

one side, then one may detach it as far as the finger can reach and yet leave sufficient for the aeration of the foetal blood; but in the case of placenta centralis, sweeping the finger all the way round could leave so little attached that there would not be much to choose between this and Simpson's method of complete separation. We think that in such a case rapid dilatation by the hand and delivery by turning would hold out most hope for both mother and child.

The following is an extract from the treatment of *post-partum* hæmorrhage. "Prof. Lusk in his recently published work advises every obstetrician to prepare for flooding during the second stage of labour—whether it is likely to occur or not—by providing beforehand a good working Davidson syringe, ice, brandy, ether, perchloride of iron, morphia, a hypodermic syringe *ready filled* with aqueous fluid extract of ergot, basins of hot and of cold water, a bedpan, carbolic acid, ergot, &c., all placed within easy reach of the bedside, a preparation neither tedious nor troublesome, but which may save a life." The author adds a footnote: "It is to be hoped the recommendations of Dr. Lusk may contribute to lessen the frequency of the appalling deaths from flooding, many of which may be attributable to lack of previous preparation." We do not know how American women feel during the progress of labour, but a tolerably large experience of midwifery among our own countrywomen would lead us to believe that such an array of instruments and appliances, "placed within easy reach of the bedside," would not be likely to have the calming effect on the patient's nervous system which we would be anxious to produce in cases where we had reason to fear the onset of *post-partum* hæmorrhage. Indeed there would be reason to fear that the services of a practitioner so "prepared" might be altogether dispensed with. Nevertheless, we heartily approve of all reasonable precautions against attacks of this sort, and would rather be found on the side of the over-careful than on that of the hope-that-nothing-will-happen practitioner. The author mentions that in order to stop *post-partum* hæmorrhage either hot or cold water may be used for injection into the uterus, but he does not discriminate between cases suitable for the one and for the other. If a woman has not had her nervous system greatly lowered by loss of blood, cold will cause the uterus to contract; if she be extremely weak, cold will kill her, and that pretty rapidly, while the injection of a stream of hot water will act as a stimulant, and the muscular fibres will contract, not powerfully, but to such an extent as to shut up the bleeding points,

the blood pressure being very slight in the feeble state of the circulation.

While speaking of anaesthetics in labour, Dr. King states that he "never uses, nor does he, on his own account, advise *chloroform* in obstetric practice. Ether and chloral are safer, and answer every purpose." We think he is wrong in this opinion. Chloral if given freely enough to relieve labour pains decidedly, may cause serious depression of the heart's action, and as labours are too frequently at their stage of greatest activity in the small hours of the morning, ether is not quite safe from artificial lights, not to mention the trouble of managing its administration. Again, chloroform, given as it is during labour, only to a point considerably short of surgical anaesthesia is found in practice to be eminently safe.

Among the causes which prohibit a woman from suckling her child the author mentions "great emotional excitability." "A violent fit of anger has rendered the lacteal secretion sufficiently poisonous to produce convulsions in the child." We would feel disposed to reason with such a woman, advise her rather to curb her temper than avoid suckling her child, and offer the inducement of its welfare as a bribe to good behaviour.

Prof. Humphry in his speech at the opening of the late Sanitary Congress in Glasgow, indulged in a diatribe against belly-bands for newly-born infants. He is reported to have said that "A more pernicious device could scarcely be conceived than the relic of antiquated nursedom, and it was impossible to estimate the number of deformed or pigeon chests, of hampered stomachs, livers, lungs, and hearts with their varied attendant life-enduring infirmities and curtailment of life that must result from the use of these "swathers" as they were called, for which there was not the slightest necessity." With all this our author agrees. If it were true that children were girded firmly so as to interfere with the action of the abdomen and chest, all this would doubtless be true, but the fact is that the flannel is seldom if ever drawn tight, and it serves very admirably the purpose of defending the infant from cold during its days of feeble heat producing power.

There are 58 woodcuts, all of them quite up to the average, the type is clear and there are few typographical errors. On p. 259 a "footing" presentation is spoken of, and on p. 238 twins are defined as "too" children, a definition which many poor women would homologate.

As a good specimen of the general style of the book, we quote a few paragraphs from the treatment of placenta prævia.

"The main principle of treatment is *delivery*, there is no safety for the woman until the uterus is emptied. It was formerly the custom, and still is by some obstetricians, when hæmorrhage occurs before the twenty-eighth week of pregnancy, to wait, using only palliative measures to check hæmorrhage, until the period of viability, before attempting to deliver. This is wrong and always unsafe. The child will seldom be saved by temporising, and the mother often dies with the recurrence of hæmorrhage, the bleeding coming on suddenly, as it is apt to do, in the absence of the physician. The best rule is to *deliver as soon as practicable after the first occurrence of hæmorrhage whether the child is viable or not.*

The usual mode of delivery is *podalic version*, preferably by external manipulation and subsequent traction of the feet; in a few cases forceps may be employed. But version and the application of the forceps are impossible before sufficient dilatation of the os and cervix uteri; therefore waiting for and to expedite this latter, and at the same time prevent a fatal hæmorrhage, the several means at our command are—*vaginal tampons, uterine dilators, ergot, rupture of membranes, and partial digital separation of the placenta*, the selection of one or more of these means to depend upon the kind of case under treatment as defined below."

As already remarked, we have a high opinion of this book as a *résumé* of what is known on the subject of which it treats and heartily recommend it to those whose time does not permit of their reading and digesting the larger manuals.

A Handbook of the Theory and Practice of Medicine. By F. T. ROBERTS, M.D., &c. Fifth edition. London: H. K. Lewis.

IN noticing the fifth edition of this well known text book, it is unnecessary to add much to the commendation which has already been accorded to the previous editions in this *Journal*. The *Handbook* again appears in the form of a single volume, a change which may be regarded as an improvement in so far as it renders it more easy of reference. The revision of this edition, so far as we have tested it, has been very thoroughly done, and much new material has been added. In regard to such subjects as the germ theory of contagion, the ætiology of tubercle, &c., we find the most recent observations briefly described, while Dr. Roberts maintains a cautious reserve as to his own opinions. The diseases of the

nervous system have been partly rewritten, and are very well done; but there is still a lack of a chapter on insanity, a subject which is ignored in most courses of lectures and text books. This is an omission which is more felt by the young practitioner than by the student, who knows he is not likely to be examined on that subject. With students there is no doubt that this edition will be as popular as its predecessors, and deservedly so.

The Causation of Sleep. By JAMES CAPPIE, M.D. Second edition. Re-written. Edinburgh: James Thin. 1882.

WE have perused this little volume with much interest and profit, and have much admired the lucid and elegant style which intensifies the initial effect, if it does not increase the intrinsic force of the argument. Dr. Cappie gives a full exposition of his hypothesis as to the causation of sleep. The drift of his argument, and what he calls the central point of his theory, is, that in sleep a change of balance in the encephalic circulation takes place—"that, as compared with their condition during wakefulness, the arterial and capillary vessels of the brain contain less blood, while to an exactly corresponding extent, the veins of the pia mater contain more." Dr. Cappie's argument proceeds upon the view first stated by Dr. Kellie, and adopted by Dr. Abercrombie—that "the cranium is a complete sphere of bone, which is exactly filled by its contents, the brain, and by which the brain is closely shut up from atmospheric pressure, and all influences from without, *except what is communicated through the blood-vessels which enter it.*" Almost all anatomists and physiologists are, we believe, agreed that from the physical conditions existing, the contents of the adult cranium can hardly vary in quantity. And even in the infant the membranous coverings of the fontanelles will only permit yielding to a certain extent, either in one direction or the other. Beyond that point, the brain is protected by the cranial walls from atmospheric pressure. Further, in Dr. Cappie's words—"Physiologists are now unanimous (so far as we are aware) in supposing that the state of sleep is accompanied by a diminished brain circulation." But (and here we reach the field of controversy), "instead of regarding the encephalic circulation to be simply altered in its balance, the more general opinion seems to be that there is a diminution of the whole mass of blood within the skull, and that compensation is got by the amount of cerebro-spinal fluid being

increased." Dr. Cappie holds that increase of the cerebro-spinal fluid is "consistent neither with the physics nor physiology of the intra-cranial organs." He then proceeds, in a series of chapters, to discuss the several conditions, anatomical and physiological, which, in his view, are concerned in the causation of sleep. At page 112 these are summed up as follows:—"In the causation of sleep, then, we have not one or two, but a combination and succession of conditions inseparably linked together. The first change is a modified movement in the molecules of the brain tissue; the last is compression of the whole organ. From lessened activity of the molecules springs a less active state of the capillary circulation and diminished stress through the cranial cavity. Next, we have a change in the balance of the circulation, in producing which the weight of the atmosphere, causing backward pressure in the cerebral veins, is an essential agent. With the altered balance of the circulation there is a change in the balance of active pressure; it is less from within, and more on the surface—it is less expansive, and more compressing. With a certain amount of compression consciousness is suspended." In order to appreciate the value of our author's hypothesis of sleep, one has to study the whole book, and this we would advise our readers to do if they have not already done so. Upon the disputed point referred to, whether or not there is an actual diminution of the total quantity of blood in the brain and an increase of the cerebro-spinal fluid, during sleep, Dr. Cappie throws no new light. It is a question which is difficult to decide by argument, and from the fugitive and subtle nature of the condition, it seems hardly determinable by experiment. Dr. Cappie's argument, taken as a whole, is extremely ingenious, and if the possibility of increase of the cerebro-spinal fluid could be put aside, we think that his explanation of the succession of changes in the balance of the circulation is perfectly satisfactory. But, whether these changes are necessary to the causation of sleep, and whether they severally produce the effects attributed to them may be questioned. It is evident that the last link in the chain of causation which Dr. Cappie mentions—viz., compression by the distended veins of the pia mater is, in his view, *essential*. Indeed, he says, describing natural sleep, "with a certain amount of compression consciousness is suspended," which certainly implies that the suspension of consciousness is due to compression.

Now it may be true that the best *imitation* of natural sleep may be produced by gentle pressure upon the brain

through an artificial opening, but it is *only* an imitation, and, besides, such an observation gives little support to the opinion that sleep is the result of pressure or compression, for it is well known as regards the brain, that similar or even identical symptoms are associated with opposite conditions of pressure.

Our chief objection to Dr. Crippie's theory of the causation of sleep is, that it is too mechanical. According to our author, the brain is *put to rest* by an elaborate system of hydrodynamics. It appears to us that what Dr. Crippie places first in "a succession of conditions inseparably linked together"—viz., a modified movement or lessened activity in the molecules of the brain tissue, ought to stand alone as the *cause* of sleep, and that the other conditions should be viewed as the *effects* of diminished activity, and are, therefore, the accompaniments or consequences of sleep. To our mind, sleep is not the product of any particular action or set of actions, but the consequence of inaction. Intermittent activity is characteristic of every organ of the body. Some organs, like the heart, have very short periods of rest; others, like the brain, have long periods of inactivity, and long periods of work. During wakefulness, the brain is kept in constant activity by various stimuli reaching it from without or from the inner workings of the mind, and in answer to these stimuli it is constantly discharging nerve force. Then comes the period of intermission of activity. We do not know what consciousness is, but we know it is associated with brain action. When this action ceases, consciousness is suspended. Sleep, then, is a negative condition or state, and instead of inquiring into its causes it would seem more philosophic to ask, What are the causes of wakefulness? This brings us into the dark and profound region of physico-psychology where the landmarks are, as yet, too few to allow us to penetrate without the certainty of losing our way.

A well executed chromo-lithograph (frontispiece) exhibits the appearance of a retina in the waking state, and also the same retina in epileptic coma. In the latter picture the whole disc is paler, and the arteries much smaller, while the veins are much larger and more tortuous.

The Electro-Magnet and its employment in Ophthalmic Surgery. By M. S. SNELL. London: J. & A. Churchill. 1883.

THE attractive force exerted by the magnet—natural or artificial—has been long known, and its properties, real and

imaginary, have always laid a strong hold upon the mind. The fact that one body was capable of exerting so great an influence upon another without any apparent connection existing between them could not fail to prove of great interest and importance; so, whether looked upon as an instrument of practical utility, or merely regarded as a philosophical toy, the magnet has always excited so much attention that it is not astonishing that surgeons long ago began to think of employing it for the detection and extraction of metallic substances introduced into the body. It is only within recent years, however, that the application of Arago's discovery, that a bar of soft iron could be converted into a powerful temporary magnet by the induction current, has been utilised by surgeons for the extraction of metallic bodies from the eye, and as the laws of magnetism became more accurately known, it was found that the use of the magnet was far more limited than was at first supposed. It is now well known that the magnetic force depends not only upon the area of the surface of the magnet, but also upon the form and nature of the body to be attracted, and that the attractive power diminishes inversely as the square of the distance between the body to be attracted and the magnet. The electro-magnet can be constructed of a power limited only by the size of the material, and by the thickness and the number of coils of wire; but, unfortunately, in the construction of such magnets, although there are certain well known rules which must be observed, yet, for the most part, we have to be guided by the results of practical experience rather than by any well defined scientific theory. M'Keown of Belfast, was one of the first to employ the magnet in ophthalmic surgery; and certainly the eye, from the transparency of its media, offers peculiar advantages for its successful application, because, by means of the ophthalmoscope, we can frequently see the exact position of the foreign body, and thus we are enabled to bring the magnet into contact with it. In the first instance, M'Keown employed simple magnets, but the results obtained were not at all satisfactory; consequently, the ordinary bar magnet was soon set aside, and the electro-magnet was substituted for it. The great difficulty, not only in the use of the simple bar, but also in the employment of the electro-magnet, is to conduct as many lines of force as possible along poles sufficiently reduced to enter a small wound, such as usually occurs when a foreign body penetrates the eyeball, and yet to be sufficiently powerful to attract and extract chips of iron from its interior. In the book before us, Dr. Snell describes, although not in detail, the form

and construction of an electro-magnet, which he has been in the habit of employing in his practice. This magnet is stated to be capable of picking up and holding suspended from its point a weight equal to six ounces, and is provided with several points, straight and curved, in order to facilitate its introduction within the eye, and to bring it as near as possible to the foreign body. At first sight, one would suppose that an electro-magnet, which was capable of suspending a weight equal to six ounces from its point, would be sufficiently powerful to extract any chips of iron which might enter the eye; but, on further consideration, we will at once see that several difficulties may arise in the practical application of the magnet to the exigencies of ophthalmic surgery. For instance, the chip of metal may have become so much oxidised, or may have got so much coated over with inflammatory products, that it is magnetised with great difficulty; or the metal may be so situated and fixed within the eye that the attractive power of the magnet cannot sensibly affect it; or, again, even supposing contact to have been made, a very slight opposing force in many instances serves to break it. Dr. Snell records a very interesting group of cases in which these and other points are well illustrated, and on reading over these cases one cannot fail to be struck by the success which he has obtained in the employment of the electro-magnet for the removal of particles of steel, not only from the anterior chamber and iris, but also from the lens and vitreous. In several of the cases recorded, the foreign bodies had remained in the eye for a considerable time, and were not of large size. Such facts seem to show that the metal had not, in the first instance, done much damage to the delicate structures of the eye, and also that it was of such a size and shape as to permit of its extraction without completing the ruin of the eye in the attempts to withdraw it, as frequently happens when the foreign body is of a larger size.

In large manufacturing centres, where workmen are daily getting their eyes injured by the intrusion of chips of metal, the importance of this subject cannot be over estimated, for although we cannot expect to be successful in the treatment of all these cases of injury to the eye, which may come under our notice, and especially in those cases where, from the size of the foreign body and the extent of the injury consequently inflicted, the eye has been hopelessly damaged from the beginning, yet we must acknowledge the electro-magnet to be vastly superior to all the older methods of treatment.

Consequently, we must henceforth look upon that instrument as an essential part of the *armamentaria* of the ophthalmic surgeon, and as one with which in suitable cases he may hope to achieve the most brilliant results in practice, and to save eyes which would otherwise have been lost. The most hearty thanks of the profession must certainly be accorded to Dr. Snell for bringing this subject so prominently before their notice.

A Treatise on the Diseases of the Nervous System. By JAS. ROSS, M.D., LL.D. Illustrated with lithographs, photographs, and three hundred and thirty woodcuts. Second Edition, revised and enlarged. London: J. & A. Churchill. 1883.

THIS work has run through a first edition in about two years, and this itself is a sufficient indication of its merits as well as of the need of such a work. The second edition is considerably altered from the first, being larger, fuller, and more abundantly illustrated. The book is now in two bulky volumes, each of them of more than a thousand pages. The enlargement is largely due to a more complete treatment of the section on the diseases of the peripheral nerves; but there is scarcely any part of the work which does not present additional matter, and the new illustrations are also very numerous. The illustrations are indeed a very important feature of the work. Everything is illustrated—the anatomy, histology, pathology, and clinical facts of the various affections. In some cases where the exact posture is of consequence, photographs are introduced.

In its plan the work aims at completeness in all departments of the subject. The general pathology of the nervous system occupies the first three hundred pages, and the various theoretical and philosophical problems connected with the subject are discussed, as well as the various groups of diseases in their general aspects. The rest of the work is taken up with the individual diseases, and the classification adopted is an anatomical one, the subject being divided into five parts, embracing (1) the peripheral nerves, (2) the sympathetic, (3) the spinal cord and medulla oblongata, (4) the encephalon, and (5) the encephalo-spinal system. Consistently with this classification each section has an anatomical introduction of a very exhaustive character, and in every step of the treatment the anatomical and pathological aspects are rigidly kept in view.

The first section, dealing with the diseases of the peripheral nerves, is very exhaustive, each individual nerve being considered in its anatomy and symptomatology. The motor points of the various nerves are, for the most part, shown in illustrations, so that the application of the galvanic and Faradic currents is rendered easy. In the second section the rather obscure affections of the sympathetic are treated of with considerable fulness, but the nature of the subject renders any approach to dogmatic teaching impossible. It is in the department of diseases of the spinal cord and brain that most advance has been made in recent years, and in this work a complete account of the subject in all its aspects will be found.

If we have any fault to find with the work it is that the subjects are often treated of with perhaps over-fulness of detail. With the very complete citation of authorities which has been introduced into this edition the author might in many cases have referred the reader to the original sources rather than multiply the pages. But if this be a fault it is one which will make the volume even more valuable to many readers, especially to those who are not within easy reach of complete libraries.

We have no doubt that this edition will have equal success with its predecessor, and there can be no question that it is thoroughly deserving of it.

A History of Tuberculosis, from the time of Sylvius to the present day. Translated from the German of Dr. Arnold Spina. By E. E. SATTler, M.D. Cincinnati: Robert Clarke & Co. 1883.

To those who are interested in tuberculosis and the various theories and speculations to which its experimental study has given rise, but who, from their other avocations, have but little time to devote to the widespread literature of the subject, the present volume is likely to prove a useful one; and from the abundant bibliography which it contains it is also likely to prove of service to those who are more specially engaged in the investigation of tubercular disease. To call the book a "history," however, is perhaps rather ambitious; it would, we think, have been better designated an "outline of the history," or a "synopsis of the history," for, as every one knows, a complete account of all that has been done in regard to tuberculosis would occupy considerably more than 191

pages of crown 8vo, rather widely printed. Notwithstanding this, however, we are not acquainted with any other volume where one can so rapidly gain such a comprehensive outline of the subject as he will from a perusal of this book.

The work is divided into seven chapters, the first five of which are a translation from Spina, and the last a continuation of the subject up to date by the translator. The first chapter shows what has been done with regard to the pathological anatomy and histology of tuberculosis; the second, third, and fourth give an account of inoculation, inhalation, and feeding experiments; the fifth treats of experiments with the tubercle virus, and describes the "*monas tuberculosum*" of Klebs; and the sixth and seventh relate the work done by Koch and succeeding observers, finishing up with an account of the discussion at present going on between Koch and Spina of Vienna.

We are glad to notice, too, that the work done in this department by our late respected townsman, Dr. Foulis, has received due recognition and been commented upon; and we take this opportunity of correcting a printer's error in the spelling of Dr. Foulis' name, which in the text appears as *Fonlis*.

We have pleasure in recommending the book.

The Lettsomian Lectures on the Treatment of some of the Forms of Valvular Disease of the Heart. By A. ERNEST SANSON, M.D. Lond. London: J. & A. Churchill. 1883.

IN selecting a subject for the present series of *Lettsomian Lectures*, Dr. Sanson has been successful in choosing one of widespread general interest, and one on which, from his previous studies, he is well qualified to speak. As all rational treatment must be founded upon sound pathological principles, so, although the subject of the Lectures is the treatment of heart disease, the reader will find that the pathological and clinical aspects of the question are discussed in as great detail as the therapeutical, or perhaps in even greater detail.

In the second lecture the author records his experience of the various drugs that have been employed in the treatment of mitral regurgitation; and it is interesting to note that, although all of them have their advantages, *digitalis* still occupies the most important place. It is doubtful whether

casca "has any more beneficial action in mitral disease" than digitalis; caffeine should be employed "in any case where, in cardiac dropsy, a rapid diuretic effect is desirable"; and Dr. Sansom is not yet convinced whether convallaria maialis is to be regarded as superior to digitalis.

Perhaps the most unsatisfactory part of the work is that in the first lecture, which deals with the pathological anatomy of endocarditis. The descriptions are sometimes a little obscure, and the terms employed strike us as being rather pedantic—for example, take the terms made use of in the following sentence:—"The *second form* of endocarditis, or, properly speaking, valvulitis, to which I shall call attention, is that which I would term the *sclerous* or *fibrotic form*." Again, it is not quite easy to be certain of what is actually meant by the following:—"In this form microscopic section shows that there is a gradual fibrous transformation of the neoplasm, resulting in the production of a quasi-cicatricial tissue."

Generally, the Lectures are written in a pleasing and attractive style, and will well repay a careful perusal.

The Transactions of the Medico-Chirurgical Society of Edinburgh. Vol. II; new series. Session 1832-83. Edinburgh: Oliver and Boyd. 1883.

THIS volume shows that the Edinburgh Society is in a vigorous state, and that a large amount of the best kind of work is being done in it. The papers are greatly varied in subject, from Medical Notes of the Egyptian Expedition in 1801 to An unusual case of Strangulated Hernia. Besides papers, there are frequent exhibitions of patients and of pathological specimens, which no doubt give variety and interest to the meetings. It is apparent that the Edinburgh Society combines in itself the characters of our Glasgow Medico-Chirurgical and Pathological Societies, and it may be a question whether this combination is not a wise one. It is at least a question worth considering whether these two Societies might not be advantageously united, especially as they are, for the most part, manned by the same persons.

REPORTS OF HOSPITAL AND PRIVATE PRACTICE.

PRIVATE PRACTICE.

CASE BY DR. FRASER, PAISLEY.

FOREIGN BODY IN VERMIFORM APPENDAGE: PERFORATION—PERITONITIS—DEATH.—Master O., a bright little fellow, æt. 9 years, was taken ill on the 14th August, 1883, with symptoms as of acute gastric catarrh, accompanied by constipation and characterised by persistent vomiting and pain, the latter, however, very slight and not at all localised. On the morning of the 18th, the symptoms had undergone very marked improvement, the temperature being normal, the vomiting having ceased, and there being an absence of all nausea and pain, and only very slight tenderness of the abdomen. During the early morning of the 20th, he suffered a relapse, with symptoms which then were recognised as due to perityphlitis. The bowels were constipated, there was pain on pressure over the cæcum, which region was slightly swollen. The pulse was rapid but good, and the fever moderate.

The treatment consisted essentially in the administration of belladonna and opium, with latterly morphia administered subcutaneously, and appropriate external treatment. The disease, however, progressed rapidly to general peritonitis, and he died on the 23d. A *post-mortem* examination was made on the 25th Aug. by Dr. Joseph Coats, and the following notes were taken.

The abdomen was considerably distended. On laying open the peritoneal cavity there was found in every region an exudation consisting largely of yellow pus with occasional fibrine, partially gluing the intestines. This was particularly abundant in the neighbourhood of the ascending colon, where there was a considerable layer of recent fibrinous exudation. On carefully removing the caput cæcum and vermiform appendage it was found that the tip of the appendix was wanting, there being at this point an open ulcer communicating with its interior. On laying open the vermiform appendage it was found distended, but there was no ulceration except at the tip although the glandular openings were somewhat unduly prominent.

On examination of the pelvis, after removal of these parts, a small foreign body was discovered lying on the rectum at

the right side and just in the neighbourhood from which the vermiform appendage had been removed. The foreign body was pyriform in shape, and measured nearly half-an-inch in diameter. It had a light brown colour, moderately firm consistence, and presented one or two small cracks. It was apparently composed of dry faecal matter.

Remarks.—There could be no doubt in this case that the source of the mischief was the foreign body in the appendage. This piece of inspissated faeces may have lain there for a long time, but it had ultimately ulcerated through the appendage, and led to peritonitis, at first local but ultimately general.

CASE BY WM. WALKER, M.D., POLLOKSHAWS.

CASE OF CONTRACTION OF SMALL INTESTINE, THE RESULT OF AN INJURY—DEATH.—This is a case, the nature of which was very obscure to the two medical gentlemen who saw it, as well as to myself. Indeed, an accurate diagnosis, in my opinion, could not have been made during life. The history, however, read in the light of the pathological condition of the bowel, appears to show, that in the month of April a state of localised sub-acute peritonitis and enteritis, the result of injury, had been set up, and had even extended to the urinary bladder, causing pain on passing water; that the effusion thrown out at that time around and in the tissue of the bowel had been gradually contracting, and in the end of July had come to interfere with the passage of their contents.

It was a case of death from what was practically obstruction of the bowels, although they were never altogether closed, as up to the very end they allowed passage, to a limited degree, of their contents.

Miss M., æt. 24, teacher of music. The history obtained on 12th August, the first time I saw her, was as follows:—In the early part of the year she fell on her back on the street, having slipped on the ice, but was perfectly well till April last; in fact, her mother says that up to that time she had been a person exceptionally free from any complaint, and had from her infancy enjoyed uninterrupted good health.

During the month of April her appetite began to fail, and she complained of pain in her stomach after food, and likewise pain in passing water. Towards the end of the month these symptoms increased, which induced her to procure medicine, for what she considered was dyspepsia. The medicine, she

thought, did not do much good, as the symptoms continued more or less severe until the month of June, when they became easier, and practically disappeared. She was fairly well during June and July, although somewhat duller than usual, and more inclined to sleep.

In the end of July she began to swell about the stomach and round towards the back, and then, for the first time, she noticed that her dress did not meet as usual.

The pain complained of after food, which had annoyed her from April to June, returned; but she was free from any pain in making water, although she fancied the quantity voided in the twenty-four hours was less than natural. The bowels were now, as a rule, rather constipated, a very unusual thing for her, and she had occasionally to take medicine, which moved them, the stools being dark in colour.

Since July she has had two, probably three, attacks of vomiting, of what was considered bile. On the 11th August she felt so unwell that she did not leave the house. At 10 P.M. she was seized with spasms of pain in the region of the stomach, and commenced to vomit. The spasms and vomiting continued during the night and next day, and she could now no longer lie on her left side.

12th August.—There was uniform swelling, in great part tympanitic, over the abdomen, extending up to the ensiform cartilage. The swelling was so great that one was prevented from arriving at the conclusion as to whether there was any tumour or hardness in the abdomen. Pulse 120, with no perceptible rise of temperature. Sedative and alterative medicine was given, with hot fomentations to the belly.

13th August.—Vomiting and spasms somewhat abated, but she was much annoyed with wind, which frequently came up. Managed to retain some castor oil with turpentine.

14th August.—Medicine has operated three times, but sparingly, and a good deal of wind passed at these times and likewise at intervals since. She was retching several times during the night, and feels to-day the taking of food would induce vomiting. The spasms of pain are not now so severe as they were. Slept an hour this morning. Pulse 120. Temperature normal.

15th August.—Has been retching all night, and frequently puts her finger into her throat to bring up some wind and a little mucus, which gives slight relief. The spasms of pain are now felt more in the back than in the belly. Took some fluid food, which did not come up.

16th August.—Not nearly so much retching last night, and

vomited only once. Bowels moved again to-day. The swelling is perceptibly greater than a few days ago.

17th and 18th August.—Much the same, but complains of greater oppression from the wind.

19th August.—Has been very restless, and vomiting; bowels moved again. The swallowing of anything induces a severe pain in the left breast, near the stomach. The swelling increasing, and there is a considerable quantity of fluid in the cavity of the peritoneum.

20th August.—Much the same.

21st August.—Complains of great oppression and pain at the breast on taking any fluid. Fully a gallon of straw coloured fluid was drawn off from the cavity of the peritoneum, and now a slight fulness is detected in the right iliac region.

22nd August.—Has been lying easier, but still vomiting at times a brown coloured matter.

23rd and 24th August.—Much the same, but gradually losing strength.

25th August.—Died early this morning. *Post-mortem* 40 hours after death. Cadaveric rigidity present; face very much swollen, and a dark fluid oozing out of the mouth and nostrils. Belly greatly swollen, and when an incision was made in the middle line a quantity of fluid escaped. Stomach and bowels very much distended, and filled with wind and some semi-fluid matter. The lower part of the small intestines was in places glued together, and the mesentery adjoining was thickened and felted, the result of previous inflammation. The ilium, for 8 inches at its lower end, was so thickened and contracted as barely to admit the point of the index finger. The ilio-cæcal valve was free and natural. The other organs of the abdomen were healthy.

ROYAL INFIRMARY.

FROM DR. PERRY'S WARDS.

CASE OF GENERAL TUBERCULOSIS; EXCAVATION OF LUNG AND SUDDEN DEATH FROM HÆMORRHAGE. [Reported by C. W. Stewart, M.D.]—This case is mainly interesting from the rarity of general tuberculosis in so young a person, leading to such destruction of the lung as to cause death from hæmorrhage.

Henry Nicol, aged 10, was admitted into the Royal Infirmary on 19th June, 1883, having been recommended by a medical man as a case likely to be benefited by hospital treatment. His appearance, however, aided by physical examination of the different systems, led to the belief that the patient suffered from tuberculosis, both in the abdominal and thoracic organs, but that the disease had made most rapid advances in the lungs. There was dulness and increased resistance over the left lung, extending from the apex down to the pre-cordial area, and the vocal resonance was somewhat increased on this side as compared with the right. Upon auscultation numerous moist crepitations were heard over the whole of the left lung, while below the clavicle the breath sounds were of such a hollow character as, with other signs, to indicate the existence of a cavity.

The patient had also some diarrhœa, and so gradually became weaker. Eight days after admission, after a severe fit of coughing, blood began to pour profusely from his mouth; besides what was lost on the bed, two spittoons were almost filled. After this he survived only a minute or two. The origin of this flow of blood was believed to be rupture of an artery into the cavity before alluded to as existing in the left lung.

Post-mortem.—A summary of the chief *post-mortem* appearances is as follows:—

Heart is pale and anæmic; the ventricles are firmly contracted.

Lungs.—The *left lung* is completely adherent, the layers of thickened pleura requiring the use of a knife to separate them. A cavity of considerable length, and extending downwards, forwards, and inwards, towards the root of the lung, easily admits the finger. It was partly filled with blood clot, and this being removed, a large branch of the pulmonary artery, and a good sized bronchial tube were found to open into the cavity.

The *right lung* is slightly adherent, and the surface as felt by the hand is nodular, little masses of thickened pleura corresponding in position with the nodules. The lung, on section, presents a uniformly grey appearance, with little protruding miliary tubercles.

Liver is seen to be of a more pale colour, its cut surface being studded over irregularly with small tubercles of varying size. It is adherent to the diaphragm, and indeed the liver, stomach, spleen, and intestines are all found to be firmly matted together.

Spleen is enlarged; its section is studded with pale cheesy masses varying in size from a large pea to a pin's head.

Omental fat has almost entirely disappeared. The omentum is reduced to a clear transparent membrane, with miliary tubercles scattered over it. Permission was not obtained to examine the brain.

It is thus seen that, while the disease was most advanced in the lungs, its distribution was very general, its presence being manifest in all the main organs of the body.

WESTERN INFIRMARY.

REPORTS UNDER THE SUPERVISION OF J. LINDSAY STEVEN, M.B.

FROM PROFESSOR G. BUCHANAN'S WARDS.

FOREIGN BODIES such as PINS AND NEEDLES are well known to take a most erratic course in the body—The following is a curious example.—Mrs. P., æt. 38, was washing the floor one day about nine years ago when a needle ran into her hand, at a point in the ball of the right thumb, in front near the palm. It was the blunt end of the needle that entered the hand, and the point broke off in her endeavours to extricate it. The needle there remained, apparently causing no uneasiness, until about twelve months after (*i. e.*, eight years ago), when she noticed a small projection in the back of the hand, pretty well forward in the third intermetacarpal space. By pressure on the palm this projection could be made more pronounced. It was incised by Dr. Henderson, Partick, when a piece of a needle $\frac{3}{4}$ inch long was removed. Three years ago, while she was washing the floor, a piece of glass penetrated the palmer surface of the middle finger of the same hand. Whitlow resulted; the finger was lanced several times. Nine months ago Prof. Buchanan amputated at the metacarpo-phalangeal articulation, the finger being useless. Two months ago, just behind this cicatrix, and fully two inches in front of the original point of entrance of the needle, she noticed a hard little nodule in the centre of the palm. Believing this to be a piece of the glass, she came to-day (20th September), to consult Prof. Buchanan, who discovered the cause of this to be another bit of the needle, one fifth of an inch in length, which he removed by an incision.

Needle penetrated Hand, 1874.

Larger piece removed, 1875.

Smaller „ „ 1883.

GLASGOW MATERNITY HOSPITAL.

(Under the care of DR. SAMUEL SLOAN).

CASE OF PARTIAL PLACENTA PRÆVIA.—[Reported by John Smith, M.A., M.B., House Surgeon.] J. M., æt. 25, was admitted to the Glasgow Maternity Hospital on the evening of 15th July, 1883. She is a primipara, and unmarried, and states that she is about three weeks from her full period of pregnancy. At 10.30 P.M. on the day previous to her admission (14th July), there had been some bleeding from the vagina, a large clot and a considerable quantity of fluid blood being discharged. For some time before this occurred she had a constant aching in her back; but she had no regular labour pains, nor had she met with an injury of any sort. At 6 A.M. on 16th July, the hæmorrhage returned to a somewhat alarming extent. About fourteen ounces of blood, with two large clots, were passed while patient was at stool; and the bed clothes and her own night dress were also well saturated. A vaginal examination was made, when the margin of the placenta was found occupying and attached to the left semicircle of the os uteri, which was dilated to about the size of a shilling. She was ordered to be kept quiet in the recumbent position, an opiate was administered, and cold cloths were applied to the vulva and abdomen. These measures were temporarily successful in restraining the hæmorrhage. Dr. Sloan saw the case at 9 A.M., and at once proceeded to further separate the placental attachment at the left margin of the os uteri, inserting his fingers between the placenta and the cervix, until he had cleared a surface that would measure 2 inches in length and $\frac{1}{2}$ inch in depth. During this operation there was some additional loss of blood—to the extent of five or six ounces. The membranes were then ruptured, and with the escape of the liquor amnii all hæmorrhage ceased. Weak, but regular, labour pains commenced shortly afterwards, and continued regularly during the day. At noon an examination was made by Dr. Sloan, when the os was found to be nearly the size of a crown piece. The edge of the placenta, however, which, at the morning visit, was found overlapping the os, could, at this examination, be with difficulty reached. The labour was terminated naturally at 10.30 P.M. Stethoscopic examination had shown the child to be alive; but at birth it was found to weigh only $3\frac{3}{4}$ lbs., was 17 inches in length, and evidently premature.

Before the "after birth" proper came away, two large portions of what appeared to be placental tissue, impregnated with clotted blood, were expelled. Including these, the placenta weighed 1 lb. 2 oz., and after its removal the uterus contracted permanently and firmly.

Patient's convalescence was uninterrupted, and she was discharged on 27th July. The child was hand-fed and thrived well; and though still weakly when it left the hospital, it had every appearance of surviving if properly attended to.

Remarks by Dr. Sloan.—This case is an important one, as bearing on the correctness of the theory and treatment of placenta prævia, advocated by Dr. Barnes. All hæmorrhage ceased as soon as the portion of the placenta which was attached to the "orificial zone" of the uterus was separated, and the membranes ruptured. The rupture of the membranes was here done without hesitation, because turning was not likely to be required; since, the placenta being only partially previous, the forceps would, if required, have been easy of application. An interesting point observed was the *apparent* recession of the placenta after the separation of its lowest portion, and the further expansion of the os. This is obviously to be explained by the *elongation* of the cervix, which is known to take place during dilatation, and which is apt to be forgotten on account of the use of the phrase "retraction" of the cervix in referring to its dilatation; though retraction, in the strict sense of the term, does take place on the completion of the dilatation. This point is of practical importance in the treatment of cases of placenta prævia; for, not only will early separation free the cervical portion and permit therefore of its more rapid expansion, but it is clear that, before any material elongation of the cervix has taken place, the examining finger can, with comparative ease, produce the necessary amount of separation of the placenta, thus rendering unnecessary the introduction of the hand into the vagina.

The effect of the rupture of the membranes was, in this case, not a mechanical one, since, the pains during the remainder of the labour being weak, they could do very little towards compressing the presenting part—the head—against the bleeding orifices. However, although the pains were not made more vigorous by the escape of the liquor amnii, the reduction of the size of the uterus, by this means, would cause constriction of the orifices of the torn utero-placental vessels even during the intervals between the pains.

GLASGOW EYE INFIRMARY.

Under the Care of Mr. HENRY E. CLARK.

NEURALGIC CILIARY PAIN, CURED BY STRETCHING NASAL NERVE.
—[Reported by Mr. John Garey, M.R.C.S.] Michael M'C., æt 49, hammerman, presented himself at the Eye Infirmary, Charlotte Street, on 3rd April, 1883, suffering from acute iridocyclitis in right eye, with considerable muddiness of the vitreous. He stated that he had received a blow on this eye two years previously. He was ordered to have Ext. Bellad. applied over the supra-orbital region, the eye was bandaged, and a purgative administered; he was instructed to bathe the eye frequently with the compound lotion used in this institution. On his return the following week he complained of very severe supra-orbital pain, extending as far as the crown of the head; the pupil did not yield to the action of atropine, and the ciliary region was very sensitive to the touch. He was ordered to take 1 gr. Calomel and $\frac{1}{2}$ grain of Opium every night at bed-time. Three days later, the pain not having appreciably diminished by this treatment, the artificial leech was applied over the right temple, and a small quantity of blood abstracted; from this he experienced considerable relief, but it proved to be only temporary in character, and in a few days the pain returned with all its former intensity. It had now certain neuralgic features, and was distinctly intermittent, commencing generally about five o'clock in the morning and disappearing about two in the afternoon. He was put on phosphorus pills (B. P.), $\frac{1}{30}$ gr. every six hours, and under this treatment the pain soon disappeared, and he was sent to Dunoon Convalescent Home. While there he for a time continued well, but on catching a slight cold, the eye affection became lighted up afresh, and he was compelled to return before the expiry of his term there to undergo further treatment. We administered full doses of bromide of potassium, and kept him at rest in bed, but with no lessening of the pain; free phosphorus was again tried, and persevered in for twelve days, but it appeared entirely to have lost its influence. Mr. Clark now suggested stretching the nasal nerve, and the patient being willing to submit to anything that offered a chance of relief, the operation was performed on 1st August, without the aid of an anæsthetic. An incision about 1 inch in length was made in the upper eyelid, running obliquely downwards and inwards, from the level of the pulley of the superior oblique nearly to the inner canthus. The orbital periosteum being exposed, a

strabismus hook was carried backwards close to the bone, and after one or two abortive attempts the nerve was caught in the hook and drawn forwards. It was fully exposed so as to make quite sure that the right structure was being pulled, and pretty firm traction was made on it in the axis of the inner wall of the orbit. This part of the operation caused most excruciating pain to the patient. The wound was brought together with sutures, and dressed with boracic lint; it healed kindly in the course of a few days, and he was dismissed on 6th August, the neuralgic pain having entirely disappeared. Since that time he has had no return of the neuralgia, and the eye retains a fair perception of light, but the pupil being almost closed it will be necessary to perform an iridectomy at a later date.

Remarks by Mr. Clark.—The connection of the nasal nerve with the nutrition of the eyeball has so long been recognised, that we can quite understand that some change will be produced in the nutrition by the elongation of that nerve, but we are as much in want of anything like a plausible theory of the exact mechanism by which such change is brought about in this instance as in other cases of nerve-stretching. That the operation is attended with much improvement of the condition of the patient is evidenced, not by this case alone, but by numerous others very similar in their nature, and it seems to be especially effective where the pain is very acute and very persistent.

M E D I C A L I T E M S.

UNDER THE DIRECTION OF

ALEX. NAPIER, M.D.

Thomsen's Disease.—The following paper, by Dr. Greffier, appeared in *La France Médicale*:—"This is an affection quite novel and very curious. Westphal, who has presented two cases of it to the Society of Medicine of Berlin (*Le Concours Médical*, 31st March, 1883), proposes to designate it *Thomsen's Disease*, because that physician, who suffered from it with all his family, was the first to give a true account of it.

MM. Ballet and Marie, who published an interesting article on this subject in the *Archives de Neurologie* (7th Jan., 1883), gave it the name of "muscular spasm at the commencement of

voluntary movements." Other designations have been proposed: we have adopted the first, because of its brevity, and because it expresses no opinion as to the nature of an affection as yet so little understood.

Whatever it may be, thanks to the researches of MM. Thomsen, Leyden, Seeligmüller, Bernhardt, Westphal, Ballet, and Marie, &c., it seems quite possible to trace the history of this malady, which must be considered a special morbid entity.

Etiology.—It is necessary at the outset to emphasise the influence of *heredity*. Dr. Thomsen, a sufferer from it himself, has been able to trace it in three generations of his own family. Heredity is equally noted in the cases of Leyden and Seeligmüller.

What should not be surprising to those who are at all well versed in nervous pathology is the fact that, in place of meeting cases of Thomsen's disease in tracing the family history, we not unfrequently find other nervous disorders. Thomsen notes that in his family nervous disturbances are remarkably common; his great-grandmother died of puerperal mania; she had two sisters who presented, at an advanced age, some mental troubles, as did also her son, the grandfather of Thomsen. One of the sisters of the author, not suffering from the affection which is engaging our attention, experienced certain temporary psychical disturbances. So also Bernhardt's case had an epileptic uncle.

Age appears to have great importance, since all the cases date from infancy, and the affection is in the main congenital.

No other circumstance appears constant, and every other condition must, for the present at least, be held as without influence.

Symptomatology.—The essential symptom is the *spasmodic rigidity* of certain muscles occurring *at the moment of executing a movement*.

In the case of MM. Ballet and Marie, the patient, wishing to go upstairs, experienced rigidity when he tried to lift his legs; but after seven or eight steps all rigidity had disappeared. In the same way, when he was made to close his hand, it was a little time before he could open it again. In all these observations the phenomena present themselves in an analogous fashion. Seeligmüller cites the case of a recruit who was the despair of his instructor, because he could not execute the management of his gun with the necessary rapidity and precision. Thomsen's son had a similar experience; being looked upon as a malingerer, he was kept for almost a year under observation in a hospital.

In another case of Seeligmüller's, a singer, when she had finished executing a piece, was obliged to rest for some moments before she could commence to walk away; when she played on the piano, her fingers were stiff only at the commencement for a certain time.

Westphal, in the communication which we have cited, expresses himself in these terms:—"In certain circumstances active movements are arrested in consequence of the contraction of the muscles, and these circumstances are as follows:—

"1st. After longer or shorter repose of the muscles of the leg, quite suddenly, on attempting to rise, the patient feels rigidity in the articulations of the legs, which have become tetanically immovable.

"2nd. After great muscular fatigue, and even after a single strong effort, as for example in flexing the arm, the rigidity comes on.

"3rd. Also after certain complicated movements, *e. g.*, one of the two cases experienced the phenomenon in throwing off his coat, the other in trying to dance.

"4th. Contracture comes on after unexpected sensations. The patient, while running, strikes his toes against a small pebble, for example, directly the foot becomes stiff, and he falls, sometimes without having time to protect himself by his arms."

This tetanic rigidity of the muscles which are entering on action may, says MM. Ballet and Marie, lead to very odd situations. In the case which they report, when the patient was about to mount his horse, the left leg, just when it was engaged in the stirrup, was all at once seized with rigidity in flexion, while the right, in its turn, was fixed in extension above the crupper of the horse. At last, the rigidity passed off, and he was able to seat himself comfortably in the saddle.

It is unnecessary to insist on a fact which comes out sufficiently from the observations we are going to cite—viz., that the *phenomenon comes on only at the beginning of movements*. When these have been repeated a certain number of times, it ceases to be observed.

This spasmodic rigidity affects not only the muscles of the limbs, but equally also those supplied by the cerebral nerves. One of Westphal's cases experienced in speaking a certain stiffness of the tongue, which rendered his speech slow and awkward. It was the same in the cases of Seeligmüller, Leyden, &c. In almost all these cases the facial muscles equally suffered. "During laughing there occurs tension of

the muscles of the face; and in mastication, the patient may find himself unable to close his mouth." (Westphal, *loc. cit.*)

The visual apparatus may be affected, so that there is difficulty in opening the eyelids, in turning the eyes in various directions, &c. (Ballet and Marie, Westphal.)

The contractures appear to be augmented in frequency and in intensity under the influence of the emotions, of exaggerated attention on the part of the patient, and of chills; according to Thomsen one may, by calling up the phenomenon to one's memory, produce the cramp in reality. On the other hand, by repeating the movements one makes the rigidity disappear. It is noted that the sphincters remain always unaffected.

Almost all the authors indicate that there is *hypertrophy of the muscles*; it was, however, absent in a certain number of cases (Ballet and Marie, Thomsen, Peter). Muscular force is well preserved, and appears most frequently very considerable. The tendon reflexes are normal. It is the same with electric irritability. In the case of MM. Ballet and Marie, in which the electric examination was made with the greatest care by Dr. Vigouroux, chief of the electro-therapeutic service at the Salpêtrière, there was noted the persistence, after Faradic excitation, either of the contraction itself or of muscular waves, indicating an active state of the muscle during several moments.

Psychical disturbances are but rarely noted. Yet we have indicated the alternation of rigidity of the muscles and mental disorders in the cases of Thomsen and Bernhardt. Sensibility has always been found intact.

DIAGNOSIS.—When so characteristic, Thomsen's disease will not easily be confounded with any other. MM. Ballet and Marie thus establish the diagnosis: *Spasmodic tabes dorsalis* is a disease also congenital, characterised by rigidity of the lower limbs: but this rigidity is persistent, it does not disappear when the movements are continued; it is accompanied by an excitability most exaggerated, as seen in the knee reflex and in the appearance of spinal epilepsy. The upper limbs, the muscles of the tongue and face, are unaffected. In *pseudo-hypertrophic paralysis*, there is a true paralysis; muscles of the largest size are extremely weak, and by their side are found others completely atrophied.

NATURE OF THE DISEASE.—Have we to do with a lesion of the muscular system or of the cord? That is still very difficult to decide. Pathological observations are as yet quite insufficient; Ponfiek having made an examination of the muscles of one of Thomsen's sons, found no lesion. The

microscopical examination made by Patrone, has given equally negative results. We are thus reduced to hypotheses, which are numerous. Thomsen, having regard to the alternation of spasms and mental diseases in his family, looks on the disease as a psychosis. Westphal views it as congenital anomaly of the muscular tonicity. M. Jaconsiel (Discussion at the Berlin Society of Medicine) proposes to denominate the disease "congenital muscular hypertrophy." The patient whom he saw, had the muscles normal, the fibres presenting nothing particular. According to him, the occasion of the contraction is quite capricious and peculiar, and the stimulus increases with resistance, but the patient may nevertheless accomplish what is desired up to a certain point. The muscles, of which the development is extraordinary, are indolent, but not sufficiently inert to atrophy (Fischer, *Le Concours Médical*, 31 Mars).

MM. Ballet and Marie also blame the muscular system. The extension of the motor troubles to almost all the voluntary muscles, their transitory character, and the phenomena produced by electric excitation, appear to them sufficient proof.

Petrone and Seeligmüller attribute the affection to a nervous cause. The first makes it depend on a disorder of conductivity, at some point between the cerebral cortex and the terminal plaque of Rouget. The second calls it "spasmodic hypertrophic spinal paralysis." It is evident that a more complete investigation of this difficult subject is necessary.

TREATMENT.—On this there is little to be said. Thomsen has used, on himself and his family, the whole therapeutic armament with no effect.—*La France Médicale*. 19th April, 1883.—G. S. M.

A New Crutch.—Doctor James R. Taylor, of New York City, while reading a paper before the American Medical Association at its recent meeting in Cleveland, Ohio, on "Fractures of the Long Bones," exhibited a novel device of his own invention for use in combination with the ordinary crutches required by convalescents from fractures of the legs or other causes of lameness of the lower extremities. The invention consists of a neat well constructed little saddle, so arranged that it can be worn without inconvenience inside of the clothing. Attached to it there are a pair of small adjustable suspenders, the free ends of which terminate in steel hooks for fitting upon the tops of the crutches. When the suspenders are adjusted to fit the patient, the hooks reach up to a point about two inches below the axillæ, the

ends alone coming out under the arms and outside of the clothing. These hooks are the only parts of the device which are visible when it is attached to the person for use. The saddle is well padded to fit the perineum, and is of such form that the patient rests upon it without discomfort or inconvenience while sitting on a chair or sofa; its temporary removal is also nicely provided for; and when he places the crutches in the suspender hooks for the purpose of walking,



the weight of his body is carried entirely upon the saddle, no weight whatever being supported by the crutch in the armpits; so that no discomfort is experienced by him even in taking long walks, as he swings easily between his crutches, and if he is strong enough otherwise, weakness of his legs will not prevent his taking plenty of exercise. The apparatus was received very favourably, and was cordially applauded by the large body of surgeons present at the meeting.

It needs no argument to prove the advantages of Dr. Taylor's apparatus over the ordinary crutches in use. The weight of the body is carried by the well cushioned pelvic bones—designed by nature for the purpose—resting upon a well fitted saddle. And it is not necessary to point out the inconvenience and suffering imposed upon a patient when he is ordered to take exercise on the ordinary crutches, with the weight of his body suspended on crossheads in the axillæ, besides the constant danger to which he is exposed, of injury to the vessels and nerves contained within their boundaries. This apparatus has been thoroughly tested by Dr. Taylor on quite a number of his own patients, both male and female, and the great advantages attending its use fully proved. The accompanying engraving will be easily understood.

Infant Foods.—Prof. Albert Leeds, Ph.D., read before the Philadelphia College of Physicians and Surgeons, 2nd May, 1883, an exceedingly interesting and valuable paper on the subject of Infant Foods, of which the following is his conclusion :—

1st. Cow's is, in no sense, a substitute for woman's milk.

2nd. Attenuation with water alone is inadequate, and chemical metamorphosis, or, mechanically, the addition of some inert attenuant is required, in order to permit of the ready digestibility of cow's milk by infants.

3rd. The utility of manufactured infant's food is to act as such attenuants, and as such they take the place of the simple barley and oatmeal water, the sugar, cream, baked cracker, arrowroot, &c., &c., used in former times.

4th. The results of both chemical and physiological analysis are opposed to any but a sparing use of preparations containing a large percentage of starch.

5th. It is eminently probable that, besides acting as attenuants, the matters extracted in the preparation of barley and oatmeal water, and still more the solid albuminoid extractives obtained at ordinary temperatures (whereby coagulation is prevented), by Liebig's process, have a great independent value of their own. For this reason, instead of employing starch, gum, gelatine, sugar, &c., the use of a natural cereal extractive, containing saccharine and gummy matters and soluble albuminoids as well, such as our great and inspired teacher, Liebig, himself advocated, is in accordance with the developments of science since his time.

6th. The use of food made up of equal parts of milk, cream,

lime water, and weak arrowroot water, as practised for years by the late Dr. J. Forsyth Meigs, and recently advocated by his son, Dr. Arthur V. Meigs, is sustained by theory, analysis, and practice. It provides for the increase of fat to an amount comparable to that contained in human milk. It adds alkali to permanent reaction, and to convert caseine into soluble albuminates. It adds a little bland attenuant. And if, in addition, the amount of milk sugar were raised, and instead of arrowroot water, barley or oatmeal water were substituted, as the case demanded, it would approach, it appears to me, still more nearly to the conditions required.

7th. The perfect solution of the present problem is to be found in the modification of cow's milk by chemical processes, so as to make it physiologically equivalent to human milk. The nature of these processes, and the results to be obtained, are at present so nearly wrought out, that there is good ground for believing that such a solution of this problem is not far distant in the future.—*St. Louis Courier of Medicine*. Sept., 1883.

Ætiology of Club-Foot.—In a paper published in *Archiv. f. Med.*, Dec., 1882, Berg disusses this subject in the light of recent embryological research, and comes to the conclusion that the distortion is an instance of arrested development, and is not due, as often stated, to mechanical influences or to osseous, muscular, or nervous disease in the fœtus.

"It is now a well established fact that in early fœtal life the sole of the foot is turned in. The normal rotation takes place gradually, and is mainly accomplished by the fourth month, but is not complete till the sixth month. This rotation is not due to muscular power, as it occurs at a time when there are no muscles, but, according to Kölliker, it is due to the process of growth of the parts. This position of the sole is due to the position of the limbs of the fœtus at an early stage of its existence, the thighs being rotated outwards, so that the inner surface of the thigh and tibial border of the leg are pressed against the abdomen, the legs crossing each other at their middle, and the limbs being bent at the knees. . . . But in the growth of the fœtus the lower extremities alter their position, the thighs are drawn inwards and rotate so that the anterior surface instead of the inner surface lies against the abdomen, and the soles instead of the outer surface of the feet are presented against the uterine walls.

"The arguments in favour of Berg's view are summed up as follows:—

"1. The fact that the leg is rotated outward at birth in all cases born with the deformity.

"2. During embryonic life a similar deformity is present as long as the leg has not yet completed its inward rotation."—*Boston Med. and Surg. Journal.* 26th April, 1883.—D. M'P.

Inhalations of Oxygen in Lung Diseases.—Inhalations of oxygen have a sedative and antiphlogistic effect in lung diseases which is of great value in the treatment of pneumonia, of acute or chronic bronchitis, and of phthisis.

When the patient inhales air charged with two to seven per cent of oxygen, a rapid diminution of the dyspnœa is evident, respiration becomes less active, and the pulse improves.

The inhalations have a soporific effect. The experimenters have often seen the patient sleep during the inhalations. At other times sleep came on afterwards, but in all the night following was calm and peaceful.

The appetite seemed augmented while digestion and nutrition improved. The diarrhœa so often seen in bad cases is arrested.

The cases selected were undoubtedly these of well marked tubercular disease of the lungs and the results obtained warranted careful trial of this mode of treatment. *Gazette Médicale de Strasburg*, September, 1883; *Lyon Médical*. September, 1883.—J. A. A.

The Senses in New-born Infants.—The following is a summary of the inaugural dissertation of Genzmer on the above subject. He says that the sense of touch is developed from the earliest period, and reflex actions are readily excited by slightest stimulation of the nerves of touch, especially of the face, then of the hands, and soles of the feet. The feeling of pain is but slowly developed, and is only clearly exhibited after four or five weeks, before which time infants do not shed tears. True muscular sense is at least doubtful. Excitement of the sense of touch gives rise to unconscious reflex movements, the amount, therefore, rather than the quality of sensation is observable. Closure of the nostrils occasions a reflex dyspnœa. Hunger and thirst are manifested in an increased general irritability followed by reflex movements; these cease after the first week. Smell and taste are not distinguishable to infants. Genzmer asserts, in opposition to Kussmaul, that the sense of hearing is preceptible in the first, or at most the second day of life. New-born infants are so sensitive to light that they will turn the head to follow a mild

light; whilst if a strong glare be suddenly thrown upon the eye squinting is induced, and even convulsive closure of the lids. After a few days, the child will follow the motion of various objects by movements of its head. Between the fourth and fifth weeks the convergence of the pupils and the power of co-ordination in vision are preceptible. A distinct perception of colour does not exist under four or five months; before then it is quantity rather than quality of light that is recognised. The inhibitory reflex centre is not yet developed in the eye; weak and moderately strong irritation excite movements which serve that purpose. Excessively strong impressions only excite passive movements. New-born infants cannot separate the impression on their organs of sense. The readiness of excitability is shown in the fact that the stronger the stimulation, the shorter the physiological interval.

Resorcin.—Silva Oranja, Clinical Professor of Skin Diseases, at Rio-de-Janeiro, has made extensive trials of this drug, and has employed it with success in a large number of skin diseases. He has cured cases of pityriasis versicolor, pityriasis circinata t. favosa, t. tonsurans, syphilitic ulcerations. He uses resorcin in the strength of one to five hundred of water or vaseline, and strongly urges that it be chemically pure.—(*Union Médicale de Rio-de-Janeiro.*) *Lyon Médical.* September, 1883.

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THE
GLASGOW MEDICAL JOURNAL.

No. VI. DECEMBER, 1883.

ORIGINAL ARTICLES.

CASE OF TRANSPOSITION OF THE VISCERA, WITH
DISLOCATION DOWNWARDS OF THE LIVER.

By DONALD FRASER, M.D., Paisley.

I HAVE had under my care a middle-aged single lady whom I have known professionally for many years, but only about a year ago became aware that there existed in her case complete transposition of the thoracic and abdominal viscera. The circumstances which led to the recognition of this condition were of a curious and unusual character.

On the 17th May, 1882, I was asked to see this patient for what was termed a severe bilious attack. She was very ill, and suffered from pain in the abdomen, felt most acutely in the left lumbar region, from pain and increased frequency in passing water, and great irritability of the stomach.

The abdomen was swollen and tender to the touch, particularly towards the left side, and during the first day or so of my attendance, this was all that could be determined, as the patient was too ill for a prolonged examination. A short, hacking, almost incessant cough, set in early, and the irritability of the stomach continued in a marked degree, and for several weeks she could only retain food when given in small quantities, living chiefly on iced milk. She also suffered from repeated attacks of nausea and shivering. The bowels acted with medicine. She dated her illness from the 20th of the

previous month (April), when she fell backwards in coming out of a bath, and, while falling, made a violent effort to recover herself. After the immediate effects of the fall had passed off, she felt weak and had pain in the left side, with occasional attacks of vomiting. These symptoms increased in severity until the date of my seeing her.

In a few days, *i. e.*, as soon as her condition permitted it, a more careful examination was made, and it was found that a *large, smooth, rounded swelling*, which gave to the hand a feeling of solidity, *occupied the lower half of the abdomen, lying chiefly on the left side.* While it extended beyond the middle line, the greater part of it lay in the left iliac region, reaching into the hypogastric and left inguinal regions. The lower border was within an inch or so of the pubes, and the upper border was separated from the edge of the true ribs on the left side by an area of clear percussion which measured about three and a-half inches.

From its position and physical conditions it at first gave the impression of being a tumour of the left ovary. The patient however, had no previous knowledge of any swelling or sense of fulness in that region, and a further examination showed that this tumour had no uterine connection. As its shape could be made out and the notch felt in the hypogastrium, it was soon recognised to be *the liver transposed and dislocated downwards.* This transposition was found to be part of a general transposition of all the thoracic and abdominal viscera.

In addition to the signs of pressure on the bladder above referred to, the displaced organ produced a considerable œdematous swelling of the left foot and leg, which set in about the end of May, and was accompanied by pain, felt chiefly in the popliteal space, this being the result of pressure on the external iliac vein.

The cough was early found to be due to the presence of a well defined effusion at the base of the left lung—an effusion which remained strictly confined to the base, the percussion dulness being quite sharply limited by a line of clear percussion. As soon as the true nature of the case was ascertained, I ordered a bandage and pad to be applied so as to produce a continuous upward pressure on the lower surface of the liver. The result was, that about the end of June it had moved upwards to an appreciable degree; the œdema of the left foot and leg became also less.

On the 4th July, not having made any examination for fully a week before, I was astonished to find that the tumour had disappeared, its lower edge being felt underneath the edge of

the left hypochondrium. The œdema of the foot and leg, and the effusion into the left pleural cavity rapidly disappeared, and the general condition of the patient underwent more rapid improvement.

For several months after this illness, she suffered from a dragging painful sensation in the left side when she walked or stood much. Of course she requires to wear her bandage constantly, and to take great care to avoid fatigue and strain. The pressure of clothing round the waist is avoided as much as possible, though she states that she never could stand the least approach to tight lacing without being made sick. An examination made two or three months after recovery, and the patient being in a semi-erect position, showed the liver in its usual place in the left hypochondrium.

Cases of movable liver are uncommon. They have usually been found in women, and in women who have borne children. In the recorded cases few inconveniences appear to have been experienced other than colicky pains. The displaced organ showed more or less mobility, and its descent had been somewhat gradual. In this connection the following may be of interest.* "An interesting and perhaps unique case of extreme mobility of the liver has been recorded by Prof. Cantani. The patient was a lady aged 54; and eleven years previously, immediately after her last confinement, the liver had descended from its usual place into the hypogastrium, occupying a position extending from the umbilicus nearly to the symphysis pubis. The liver was of normal size and could be freely moved in every direction, and by placing the patient in a recumbent position, with the sacrum elevated upon a cushion, it could easily, with a little manipulation, be returned to its place, descending again when she assumed the erect position. During the whole period of eleven years it had occasioned no injury to health and but little inconvenience." A case is also recorded in the *Med. Times and Gazette*, 1876, vol. i, p. 602; reported to the Military Med. Soc. of the Vienna Garrison by Prof. Chvostek as occurring in the person of a woman who had borne twelve children. In this case the liver reached almost to the symphysis pubis, and could be replaced much as in the above case. It further moved with every change of posture to the extent of one or two inches to the left and right. Reference is also here made to the explanation of the mode of production of this condition as given by Meissner, who supposes congenital laxity of the suspensory and coronary

* From a letter of correspondent at Naples, *Med. Times and Gazette*, 1870, vol. i, p. 397.

ligaments, with relaxation of the abdomen in child-bearing as predisposing causes.

From such cases as the above that of my patient differs in many important points; differs very much in the severity and suddenness of the symptoms induced. These symptoms, indeed, at the outset were largely of the nature of shock, and such as might have been expected from a traumatic dislocation of the liver. In all probability there occurred at this time either a complete dislocation at once from the violent effort made by this lady in attempting to save herself from falling into her bath; or, what from the history is more probable, a partial dislocation then, its complete descent taking place some days afterwards as indicated by the increase in the number and severity of the distressing sensations felt by her. The pleuritic effusion above referred to was no doubt due to the dragging downwards of the diaphragm. That some degree of congenital laxity of the ligaments existed in this case is extremely probable. On enquiry I learned that twenty years ago she had a severe attack of pain and vomiting coincident with the appearance of a swelling or "lump in the left side," the nature of which did not then appear to be understood; and again some years ago she felt a "lump like an egg" in the same side, accompanied with a so-called "bilious attack;" and at various times minor attacks occurred which, from her description of them, I now relate to such mobility of the liver as involved its descent at least to a slight degree. It is, I presume, impossible to say how much, if any, influence the transposition of the organ has in rendering it liable to this accident, though one cannot help thinking that it must have some. However, I am not aware of any similar accident having occurred in such cases of which so many are now on record.

In this case there is present a marked degree of lateral curvature of the spine, and here, as in many of the recorded cases of transposition, the convexity of the dorsal curvature is directed to the left instead of, as is usually the case, to the right. In this respect it gives support to the view of some anatomists, that the position of the aorta on the left side of the spinal column influences the almost universal direction of the convexity of both the normal and abnormal curvature of the dorsal portion to the right; and there is this further argument in this case, that the patient is right-handed. That is to say, we have present in this patient both of the conditions which are supposed to determine the direction of the convexity of the dorsal curvature, and yet we find that the curvature is in harmony with the position of the aorta and not

with the right-handedness. The existence of right-handedness is further of interest in connection with the hypothesis that it is due to the richer supply of blood to the left side of the brain through the straight course of the left carotid, and the consequent expectation that in transposition of the vessels there would be a tendency to left-handedness, which, by the way, has not been the case so far as has been noted. Granted the truth of the above hypothesis (Broca's) then we must conclude that heredity and training, in at least many cases, overpower the vascular conditions.*

In the determination of the transposition of the organs I had the valuable assistance of Prof. Gairdner, who saw the case with me on the 20th June. Subsequent to his visit, the patient's general condition having by this time improved, I made repeated examination, with the view of determining the exact position of the various viscera so far as that could be determined by physical signs.

The percussion note over the upper and front part of the chest was hyper-resonant, so that the extent of the cardiac dulness could not be ascertained. The apex beat could just be felt, the impulse being feeble, on the right side between the fifth and sixth ribs at the distance of an inch and a-half from the right edge of sternum. The sounds were normal and heard best at the apex. Beneath the left nipple the heart sounds were heard faintly. The vocal resonance and fremitus were heard most distinctly at the left apex.

The stomach occupied the right hypochondrium, and emitted a markedly tympanitic note. The splenic dulness could be detected on the right side. The evidence from percussion as to the state of the bowels was doubtful, though there can be no doubt that there was here also transposition.

* Those interested in the literature of this subject will find a very full abstract of a paper, by Dr. Scheele of Dantzic, in the *London Med. Record*, for 15th September, 1875. Also, in the same Journal, cases referred to of Dr. Guttman, 15th April, 1876, and by Buryl, 16th October, 1876.

A CASE OF MALIGNANT GROWTH IN THE NECK,
IMPLICATING THE CERVICAL SPINAL NERVES
AND THE CERVICAL SYMPATHETIC, WITH
REMARKS.

By A. ERNEST MAYLARD, B.S. (Lond.),

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CASES in which the cervical spinal nerves and the cervical sympathetic are involved in a growth, pressed upon by an aneurism, or divided by accident, are not uncommon, and many are to be found recorded. Still, the special symptoms which arise from the implication of these nerves, and more particularly the sympathetic, are of sufficient interest to render the record of every case valuable. There yet remain many points in the physiology of the sympathetic undecided, and where in any one case there exist symptoms which, from their presence, point unmistakably to implication of this nerve, the absence of others, which theory has suggested, tend as much almost from a negative point of view to limit its true function as the existence of positive features to support or extend it. The present case must necessarily, from its nature, not prove of such physiological value as when by accident the nerves have been completely severed. A malignant growth may infiltrate or press upon the nerve, but as to whether it has completely destroyed its function or no, it is not always possible to determine. Comparatively little importance must therefore be attached to negative symptoms in the following case; but the presence of others may be safely taken as adding their weight to corroborate what, perhaps, already exist as established facts.

I will give the case in full, and although there may exist much which may appear irrelevant and inexplicable, when examined in connection with the case in question, still, facts as facts are always of value, from the light which subsequent investigation may throw upon them.

The patient, a quarryman, aged 26, was admitted into the Western Infirmary under Professor Macleod. His family history was good, no members having, as far as he knew, been affected with tumours. As regards his own health, he had had during childhood the common ailments of that period, and at twenty-two years of age acute rheumatism. While at his work two years ago, he was knocked down by a

falling stone, which struck him upon the head and between the shoulders. He states that he was rendered insensible for three or four minutes, but eventually completely recovered from his injury, with the exception that on any excessive exertion he felt pain on the left side of the thorax. No history of syphilis could be elicited, and, with the exception of enlarged glands in both groins, there were no other symptoms to suggest it. He had occasionally taken alcohol to excess, but was not a confirmed "toper." He gives the following account of the origin of his complaint:—Eighteen months back he felt pain in the shoulder, and at the time ascribed it to rheumatism. It varied in intensity, being at one time "burning" hot, while at another totally absent. He does not remember whether, during this burning stage, his arm was redder than usual. Three months later, the shoulder commenced to waste, and he felt weakness in raising the arm. Pain occurred in the neck, and he discovered a hard lump, immovable, but not impeding motion. One may incidentally remark here that the symptoms at this stage appeared to point to the origin of the tumour being somewhere in the immediate neighbourhood of the brachial plexus. He continued his work until six months ago (Nov. 1882)—that is, one year after the onset of the disease—when he was obliged to give up from increasing weakness of the left arm, difficulty of movement of the neck, and weakness of vision.

His condition on admission is that of a well made, healthy looking man. As seen in bed, he lies persistently on his back, with his head drawn down on the affected side, and his face turned towards the opposite. His only complaint is the pain, constant though variable in intensity, which he feels in his neck and at the back of the head on the left side. On examination of the left upper extremity the scapula is seen to project with a well marked depression above and below the spine, indicating atrophy of the supra- and infra-spinous muscles. The internal border is in relief from atrophy of the rhomboidei, and the axillary from a similar wasting of the latissimus dorsi and teres muscles. Atrophy of the deltoid and pectoralis major muscles causes the clavicle and acromion process of the scapula to form a prominent projecting arch, and the coracoid process is seen as a distinct pointed projection just below. Extending inwards from the coracoid process to beneath the clavicle is a strong resisting band—the costa-coracoid membrane—which can be easily defined. The extreme wasting of the deltoid permits an

easy definition of the two humeral tuberosities with the intervening bicipital groove. While there is thus a marked depression below the shoulder girdle, there is none above, a fact which seems to suggest that the nerves supplying the sterno-mastoid and trapezius muscles are not involved. The whole arm is so wasted that the outline of the bone can be felt in all parts.

On examination of the neck there is felt a fixed hard mass, reaching above to the mastoid process, and below nearly to the clavicle, where there is a defined margin. Behind it appears continuous with the spine, and in front, where the margin is rounded, it reaches to within an inch and a-half of the median line. It is somewhat lobulated on the surface, and does not form a perceptible projection. The sterno-mastoid is seen on movement of the head to contract over it.

Motion.—He is able to shrug his shoulders, when the trapezius is seen to contract. There is total incapability of any movement at either the shoulder or elbow joints; but while there is slight power of supination, pronation is *nil*. Application of the continuous current (forty cells of Leclanché's battery) to the deltoid produced slight pain, but no contraction, nor was any effect produced upon the rhomboidei, supra-spinatus and infra-spinatus muscles. Applied to the back of the arm, slight pain and slight contraction ensued; but on the front, no effect either as to motion or sensation. Applied to the back of the forearm there was sharp pain and moderate contraction, and to the front a similar result. When applied to the muscles of the thenar and hypothenar eminences there was no effect.

It is interesting to note here the association which seemed to exist between the contraction of a muscle and the production of pain, for where there was no contraction there was no pain. The explanation probably rests in the anatomical fact that the nerves which supply a muscle, supply also the skin over it, and therefore, where there is absolute loss of motion, there may be material diminution of sensation. The pain produced in testing the markedly atrophied deltoid, and the absence of contraction, may appear at first sight to weaken such an explanation; but it will be remembered that branches from the cervical nerves extend down over the acromion to supply the skin covering part of the muscle, and it is quite possible that the pain produced may in some way be due to their distribution.

In testing the muscle with the interrupted current, contraction appeared in the same muscles as were affected by the

continuous current, and, in addition, the biceps and the muscles of the thenar and hypothenar eminences responded. The remaining muscles unaffected by the continuous were also unaffected by the interrupted current. The trapezius responded well.

Sensation.—He describes his pain as "hot and burning," persistent, but varying in intensity, and when worst, of a darting character. It exists chiefly in the part of the tumour immediately above the clavicle, and radiates from there upwards and backwards to the side of the face and neck, and downwards over the shoulder to the arm. Passive movement of the arm produces pain in the neck and shoulder. On very lightly scraping the skin with the point of a nib, sensation, though diminished as compared with the right side, exists in all parts with the exception of over the lower part of the deltoid, the radial border of the forearm, and the back part of the left side of the neck above. Moderate pinching of the skin, which can be easily borne on the sound side, produces great pain on the affected side.

If we look before proceeding further to what the result of this investigation into motion and sensation might suggest, it would seem that the tumour must have commenced in the region of the brachial plexus, and soon after intimately involved its cords. Still further, from the extreme atrophy of the deltoid, its want of response to either the interrupted or continuous current, and the almost complete absence of sensation over the skin covering the muscle below, that the circumflex nerve was, or rather the fibres in the plexus which go to form it, were most intimately involved. From a similar condition of the rhomboidei and supra- and infra-spinatus muscles, the fibres going to form the nerves supplying them must have been similarly deeply implicated. Again, the total inability to supinate the forearm, the extremely feeble power of extension of the fingers, coupled with the greatly diminished sensation along the radial border of the forearm, pointed to a special involvement of the fibres passing through the plexus to form the musculo-spiral nerve. And lastly, the great wasting of the biceps, the entire inability to flex the elbow, the non-reaction of the muscle to the continuous current, and its only feeble reaction to the interrupted, together with the diminished sensation along the outer side of the forearm, seemed to indicate that, like the fibres forming the above nerves, those passing through the plexus to form the musculo-cutaneous were also greatly involved.

I may state that my reason for having thus gone so carefully

into this part of the case was an anatomical one, to gain, if possible, at the *post-mortem* examination, some light as to the probable origin of those nerves from the spinal cord; to corroborate, or otherwise, Mr. Hutchinson's belief that the musculo-cutaneous nerve arises higher up in the cervical region than the other branches of the plexus; and that the radicals of the ulnar nerve make their exit from the spinal cord through the first dorsal. Unfortunately, as will be seen later, the nature of the tumour was such as to render impossible any definite isolation of affected parts. To pass on to other features of the case:—

Temperature.—The patient states that his left arm, whether exposed or not, feels colder than the right; that his left ear at times burns, especially when he feels increase of pain in the neck, but he cannot say that he has felt it at any time with his hand to be really hotter. He also states that he has not experienced any perceptible variation in the temperature of his face. The following is a list of temperatures taken in different regions. For want of a low registering thermometer I was unable to take any temperature below 95°:—

In the axilla, on both sides, - - -	98·6°
In the elbow, on right side, - - -	96·8°
" " left side, - - -	under 95°
Between thumb and forefinger, right side,	98·6°
" " " left side, under 95°	
Between ear and mastoid process, both sides,	98·2°

In comparing both sides by touch, no perceptible difference could be distinguished.

Circulation.—The pulse at the wrist differed in no way from that on the opposite side—that is, so far as the finger could detect. I regret that a sphygmographic tracing was not taken. The arm was not œdematous, nor the superficial veins distended—facts which exempted the subclavian vessels from any material implication. After slapping the arm, or applying friction or pressure, no difference could be detected in the time of appearance of the blush, or in its persistency, as compared with the healthy side. The condition of the patient of course prevented the adoption of any such methods as Dr. Ogle* was enabled to carry out in his patient—that is, one could not force the man to take active exercise or induce in him any great excitement, so as to ascertain in what way sweating and blushing were affected on the diseased side. Ophthalmoscopic examination of the retinal vessels shows no

* *Medico-Chirurgical Transactions*, vol. lii, p. 151.

difference between the two eyes. There is nothing in the man's mental condition to suggest any cerebral complications.

Nutrition.—Beyond the extreme wasting of the muscles there does not appear that filbert-shaped condition of the ungual phalanges which is often the result of feeble blood supply, and which Mr. Hutchinson has pointed out in the case of divided brachial plexus recorded by him in his *Illustrations of Clinical Surgery*.

Eye.—It was the condition of the pupil which first attracted my attention and suggested implication of the cervical sympathetic—a fact, too, which was at once supported by the deep position of the tumour and its immediate relation to the brachial plexus. To a more thoughtful observer than myself the very existence of a tumour in this particular region would have at once suggested the probable involvement of the cervical sympathetic; for it will be remembered that this nerve is given off from the cord by the anterior roots of the lower spinal nerves which pass to form the plexus, and from these roots they proceed to the cervical ganglia. Hence, any tumour situated deeply near their exit through the intervertebral foramina must necessarily involve the sympathetic of the neck.

The examination of the eye presents the following features. The left palpebral fissure is narrower than the right, and the eyeball appears less prominent. There is no drooping of the external angle of the orbit. A few remarks upon these conditions before proceeding farther. The narrowing of the palpebral fissure has been ascribed to the contraction and relaxation of certain smooth muscular fibres contained within the eyelids. These being supplied by the sympathetic, implication of it is supposed to be the cause of the condition. Whether this be so or no, it is certain that the retraction of the eyeball itself would cause a narrowing of the interval irrespective of any such mechanism as Müller suggests. The retraction of the eyeball depends upon the paralysis of some so-called extrusor fibres, which, though better marked in some of the lower animals, have also been defined in the human orbit. Their function is to extrude the eye, and being supplied by the sympathetic, involvement of it necessarily leads to recession of the eyeball. The drooping of the external orbital angle is a phenomenon also best observed when the cervical sympathetic is divided in the lower animals, but it, too, has been noticed in the human subject.

Concerning the more technical condition of the eye Dr. Reid was kind enough to give me the following report:—

"Acuteness of vision for near and distant objects is up to standard for both eyes. Field of vision is also normal in both. Colour vision perfect. Spinal myosis of left eye, though still very evident, is not so striking as before on accommodation for near objects. [I should say that Dr. Reid had examined the case about six weeks previously, but did so again that the report might coincide with the date at which I took it, that is, about the period of six weeks after his admission.]. Pupil does not react to light and shade. Right pupil appears to act both to light and accommodation of eye."

The "weakness of the eye" which the patient gave as one of the reasons that induced him to give up his work may perhaps be explained by the gradual implication of the sympathetic at that period, the result of this being to act as a stimulant to the nerve, and this, by causing contraction of the retinal vessels, produces anæmia and weakness of sight. This, I think, is a more likely explanation than that it depended upon the early and transient hyperæmia due to complete abolition of the function of the nerve, for the result of hyperæmia is generally to produce an unusual acuteness of a sense.

Secretion.—Cautiously avoiding anything like leading questions, he was asked whether he perspired more on one side of his face than the other, and also whether he felt dryness on one side of his mouth more than on the other. To the former question he replies definitely that he sweats more on the right side; and to the latter, that he feels dryness on the left. He cannot say that he notices any difference in the dryness of the eyes or the two nasal cavities. It happened that coming into the ward one day I found the patient just awakened from sleep, with the right side of his face bathed in large drops of perspiration, while the left side, though moist, presented no such appearance. I several times afterwards had the opportunity of seeing the condition and pointing it out to others. This profuse perspiration, however, was not limited to the face alone, for, on examining the chest, a similar condition was found; so that what we were really dealing with was abnormal dryness on the affected side. This corroboration of the man's former statement justifies us in alike accepting, what otherwise it is difficult to prove, his assertion that the left side of his mouth is dryer than the right. These two features coincide with what occurred in Dr. Ogle's case before referred to, and in Dr. Payne's recorded in the St. Thomas's Hospital Reports for 1873, with the exception, however, that in that of the former, diminished secretion was most marked after exercise; whereas, at rest,

there was an increased vascularity of the affected side as compared with the healthy. Remembering Mr. Hutchinson's query as to the possibility of any affection of the sebaceous glands, I examined carefully for comedones and acne, but found nothing to suggest any increased secretion of these glands.

Until the patient died, there was nothing of any particular interest to note. He lay very patiently, seldom complaining, though suffering occasionally severely from the pain in the neck. His general condition, with the exception of increasing weakness and wasting, was much the same towards the close as when the report was taken about two months before. A week or two before death he had spasmodic attacks of dysphagia, and on the day of his decease two or three attacks of "choking," in one of which he suddenly expired. The *post-mortem* was made on the third day, and permission could only be obtained to examine the region of the tumour.

After reflecting the superficial structures a portion of the tumour—that felt immediately above the clavicle—was exposed. It was soft and lobulated, being in front, unattached to the surrounding structures, but behind, extending deeply, and continuous with a much more firmly fixed and indurated mass. The sterno-mastoid was wasted and freely movable over the growth below, but above was involved. The cervical nerves supplying it appeared free from any implication. Posteriorly the trapezius was also seen much wasted, and the middle part bound down by the tumour. Between these two muscles the growth had pushed forward and infiltrated the muscles forming the floor of the posterior triangle, and at the lower part had most completely involved the brachial plexus. The subclavian vessels, which were pushed somewhat down and under the clavicle, were fixed by the growth, but their channel remained perfectly pervious. Examining the condition of the vessels and nerves on the inner side of the tumour, it was found that while the carotid artery and internal jugular vein were quite free the vagus had become partially involved. Neither the trachea nor the œsophagus could have been pressed upon.

To obtain the best idea of the parts actually involved, and the deeper connections of the tumour, transverse sections were made at slight intervals down to the spine. Those which passed through opposite the lower cervical vertebræ divided an extremely dense fibrous mass containing the cords of the brachial plexus and intimately connected with the spine; those passed higher up, and towards the occiput

divided a much softer mass, infiltrating the tissues in the form of isolated nodules, and having rather the appearance of extension from below than of any primary seat there. On opening the spinal canal the growth was seen to extend into it through the intervertebral canals of the lower cervical region, closely affecting the anterior roots of the spinal nerves, but in no way interfering with the cord. Dr. Coats kindly examined the tumour microscopically, and found it to be typical carcinoma.

If the densest part of the growth be taken as the oldest portion, then the *post-mortem* appearances confirm what the early clinical symptoms suggested—that its origin must have been in the immediate vicinity of the anterior roots of the spinal nerves going to form the brachial plexus. What structure a carcinoma would arise from here, I leave for the pathologist to determine. The latest symptoms of dysphagia and choking which the patient experienced must have been due to the gradual involvement of the pneumogastric. The implication, acting as a stimulant, caused the spasmodic attacks through the recurrent laryngeal; and one of these attacks being prolonged death suddenly ensued. I have to thank Dr. Macleod for his courtesy in allowing me to watch the case and to make use of my notes.

ON DRUGS AND CURATIVE HYGIENE: BEING A LECTURE DELIVERED AT THE OPENING OF THE SESSION IN THE WESTERN MEDICAL SCHOOL.

By EBEN. DUNCAN, M.D.,

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INTRODUCTION.—My first duty is to express, on behalf of my colleagues and on my own behalf, a very warm and cordial welcome to our students, old and new, and to thank the friends of this institution for the interest they have shown in its continued prosperity by their presence with us to-day. I am encouraged to hope that we shall have a most successful session, all the more that I see from the newspaper report of the opening of the University that the professors there are complaining of overcrowded classes. I have a great affection for my old Alma Mater, and I here publicly express the great

pleasure which it gives me to hear of her increasing and well deserved prosperity. In her success and reputation the extramural schools are greatly interested, even from selfish motives. From my knowledge of the distinguished attainments of the occupants of the University Chairs, from the enthusiasm with which the extramural teachers in Glasgow are now animated, and from the abundance of opportunities which the medical schools and our large hospitals continue to offer the student of medicine for practical work, I hope to see the day when both the intramural and extramural schools of Glasgow will rival in success and eclipse in reputation the sister schools in the metropolis of Scotland. My love for the University is great, but I confess that my sanitary instincts were up in arms against an open acknowledgment on the part of Professor Young of a flagrant transgression of the sanitary laws of Glasgow. I felt inclined to write immediately to my friend Dr. Russell, and call his attention to the overcrowding of the class rooms of the University, and to ask him to ticket them, in the interests of the suffering professors and students. Prevention is better than cure. We have still spare seats in our class rooms, so that the unfortunate students need not be afraid of being left homeless and teacherless. We lecturers of the Western Medical School will come to their assistance with great cordiality. As lecturer on hygiene, I have already examined the drains of the school. I shall look after the other sanitary arrangements, and most strictly prohibit any of my colleagues from taking more students than they can properly accommodate.

Since we met last year we have had the misfortune to lose the services of our much esteemed colleague, Mr. Maylard. He carries with him our respect and hearty good wishes. We hope he may be able to look back with pleasure on his connection with this school. Our new lecturer on anatomy comes to us with high recommendations. He has already for some weeks been working in the school, and those who know him and his acquirements have no hesitation in saying that he will prove a worthy successor to Mr. Maylard. The students of anatomy will continue to have here every facility for practical work and careful teaching which they have enjoyed in the past.

In looking over a children's paper the other day, I read the following paragraph:—"The natives of India have numberless superstitions in regard to diseases. If they are suffering from rheumatism, they tie a peacock's feather around the leg to

cure it. If they have fever, they brand the chest and stomach with a hot iron. If a man's bullock is lame, he ties a red rag around its horn, and will declare most positively that it will cure the lameness, if only it is allowed to remain. When a horse is eating its grain, the keeper spreads a towel over its back to make the grain digest properly, and will insist upon it that the horse will die if the towel is removed." When I read this paragraph, it seemed to me that it would form an admirable text to lecture from, and that I might profitably discuss the place and power of drugs in a rational system of medicine, and compare it with the place and power of what is now called curative hygiene. At the present time we have a perfect deluge of new remedies for every conceivable form of disease forced upon our notice by medical men, who put forward no other claim for their acceptance than that which the Hindoo urges for the use of his red rag, or his peacock's feather. The Hindoo would be able to say with perfect truth, "It does not matter how improbable and how foolish my treatment may appear to you to be. I can point to a number of instances in which I have used my peacock's feather in actual cases of rheumatism, and the rheumatism has got better; and I can point to a still larger number of authentic instances in which lame bullocks have recovered under the treatment by the red rag. I believe in the treatment because I have seen the cures. My treatment is based on experience, and therefore independent of any theoretical explanation." The majority of the men who struggle to push themselves and their new drug into the notice of the medical world, use the same argument, and give as little rational ground for belief. The weekly and monthly journals of late years devote their columns largely to advertise every new remedy which the folly, conceit, or credulity of individual members of the profession, rather than any merit in the drug, bring into an ephemeral popularity. This is done at the expense of the unfortunate sick, whose interests are sacrificed without the slightest hesitation by the class of practitioners who make a reputation by being the first in the field to prescribe every new remedy which cumbers the pages of our periodical literature. I have not a word to say against the trial of a new remedy by a man who is acquainted with its chemical properties and its physiological action. In diseases which resist well known and well tried methods of treatment, it is our duty to give our patients the benefit of any remedy which we have rational grounds for prescribing. But if we give a drug without having any reasonable theory of its action, simply because

somebody gave it in America, or in Germany, or in France, and his patient recovered, we are no better than the Hindoo with his red rag and his peacock's feather. The true place and power of drugs in the treatment of disease is a very interesting question, both for the public and the student of medicine. It will assist us to arrive at a proper view of the question if we briefly describe the theory and practice of the great heretical system of medicine which Hahnemann introduced at the beginning of this century, and which still survives, and even flourishes among us.

The theory upon which Hahnemann founded his system was "that, given a diseased action in the body, if a similar action of a stronger nature could be developed in the same body by a drug, the stronger action would destroy the weaker." Further, "that if developed in the proper proportion, the medicinal malady neutralises the natural malady, and leaves no evil result in the body of the patient." It follows, from this theory, that what is requisite for the successful treatment of disease is the administration of a medicine the effects of which on the healthy body most closely resemble in their symptoms the particular disease to be treated. *Similia similibus curantur* was therefore the fundamental principle of Hahnemann's system of homœopathy. Having become possessed with this idea, he carried out on his own person, and with the help of his disciples on other persons, a long series of trials or provings of the symptoms which follow upon the administration of various medicines on the healthy human body. A given dose of a particular drug was administered to a person who afterwards sat down and committed to writing every unusual sensation he felt in any part of his body. As this individual expected unusual sensations to happen, he had generally a long catalogue of symptoms to return. The various records thus obtained were compared by Hahnemann with the results of observations made upon himself, and the results thus obtained constituted what goes by the name of a proving of the medicine. As the persons who so experimented were not accustomed to scientific observation, these provings contain a mass of absurd and contradictory symptoms, and are altogether inconsistent with the results now obtained by careful and accurate scientific methods. A further departure from ordinary modes of treatment was found to be necessary. It turned out that when the medicine so selected on the homœopathic principle was administered in ordinary doses, instead of any improvement resulting, the patient usually got worse. This would have satisfied most men of the falsity of the doctrine, but Hahnemann's faith in

his principle remained unshaken. He thought, on consideration, that this unfortunate result could not be owing to any error in his theory. He offered the ingenious explanation that the medicinal malady induced by these ordinary doses on the extremely sensitive body of the diseased patient was much greater than was necessary to produce the mere neutralisation of the natural malady. There was therefore a surplus of force left which expended itself with injurious effect on the body of the patient. On this ground he gradually attenuated his doses, and thus he arrived at the second great principle of homœopathy—the doctrine of infinitesimal doses, based upon an alleged extreme sensitiveness of the affected part in the diseased organism. This principle he developed into a mystical system, by which, through shakings and triturations, new and miraculous powers were developed in attenuations so extreme that although capable of numerical expression, they are beyond our powers of thought or comprehension. Finally, he developed a third principle, and to this part of his system I beg you to pay special attention. He came to the conclusion that as it was necessary to exercise such great care in the homœopathic selection of his drug, and as he had found such evils to result from what ordinary physicians would look upon as moderate doses of medicine so chosen, it was of the greatest importance to keep a strict watch on errors of diet on the part of the patient, and on every other non-hygienic condition which might counteract the remedial process set up by his infinitesimal dose. It was therefore insisted upon that all homœopathists should pay the strictest attention to the regimen of the patient. In acute diseases he advised that the instinctive desires of the patient with regard to food, drink, and temperature, should be adhered to as far as practicable, but in chronic diseases the most careful and regulated dietetic and hygienic treatment was insisted upon. After strictly forbidding the use of tea, coffee, pastry, cheese, and a great variety of other foods which might be considered unsuitable for a chronic invalid, he further enjoined his patients to avoid or abstain from over-indulgence at table of all kinds—all spirituous drinks, over-heated rooms, sedentary life, passive exercise on horseback or in a carriage, sleep after dinner, sexual pleasures, exciting books, uncleanness, anger, vexation, scorn, exciting play, over-exertion of mind, marshy districts, confined localities where air is stagnant, &c., &c. So careful was he in these matters that he even insisted on the avoidance of tooth powders, scents, and perfumeries, lest by any chances matters with unsuitable medicinal properties might be introduced into the body of his patient.

From a theoretical point of view, a more rotten foundation could scarcely exist for a new system of medicine. Let us recapitulate—1st. It assumes that for every natural disease which afflicts the human frame there is what we may term an analogue in the shape of an artificial disease which we can set up at will by a drug. 2nd. It assumes as its fundamental position that, given two diseases resembling each other in their symptoms, and of somewhat similar intensity, these two diseases would neutralise each, and would thus come to an end, leaving the body of the patient unscathed. 3rd. It assumes that the diseased part has its sensitiveness enormously increased as regards its capability of being acted upon by the analogous disease. 4th. That an infinitesimal dose of the homœopathic drug, which has acquired new properties by a given number of shakings and triturations during the process of attenuation, repeated at intervals of days or weeks, is sufficient to restore it to a state of health. What does modern scientific medicine say to these assumptions? The results of carefully conducted experiments on the action of drugs, repeated over and over again by competent observers, with the help of modern instruments of precision for arriving at and recording facts, teach us 1st. That there is no drug which can set up an artificial disease that we can consider in any true sense analogous to any of the well marked specific diseases with which we are acquainted. 2nd. With regard to the alleged alteration in the physical and chemical properties of homœopathically prepared medicines, we find that as long as the attenuation of a drug does not go so far as to prevent its recognition by ordinary chemical and physical tests, it remains unaltered by any shakings and triturations to which it is subjected. When it gets so attenuated that chemical tests no longer act upon it, it is beyond the sphere of the senses, and its behaviour cannot be ascertained by any human being. Lastly, there is no rational ground for supposing that in such attenuations it has any effect whatever on the human body.

You will see from what I have told you of its doctrines that homœopathists do not require to trouble themselves about the causes of diseases. Neither do they require to concern themselves about their results, as shown by pathology. Hahnemann's views on these most important subjects were very crude—so absurd, indeed, that I will not waste your time describing them. I need only say that he attributed seven-eighths of all chronic diseases to the influence of a well known malady called psora, or itch. In such cases, he said, the real object of the physician should be not to treat the ostensible

disease in the skin, but this internal essence of itch, which he believed to pervade the whole system of the patient. For the vulgar notion that it is dangerous to cure a skin eruption, because by so doing you transfer it to the internal organs, we are indebted to the teaching of Hahnemann. He declared that if psora was cured by local means alone, it would infallibly get worse internally, and unless treated homœopathically would certainly end in death, and he strongly affirmed that nature could not cure any of the chronic diseases which psora gave rise to. When, in the light of modern knowledge, we reflect that the cause of this dreadful malady is an insect in the skin, which we can destroy with a few inunctions of sulphur ointment, and when we further reflect that the eruption on the skin of the patient—to which Hahnemann devoted his great powers of observation, and from which he drew such conclusions both as to prognosis and treatment—is largely the result of the patient's scratching, and quite an accidental accompaniment of the malady, this instance alone shows the absurdity of the homœopathic theories, and points us to the true basis of a rational treatment of disease. This may be shortly stated to be an enquiry into the causes of the disease, and a consideration of the best means for removing these causes. If you can get rid of them, either by drugs or otherwise, nature will generally, unaided by drugs, get rid of the symptoms. The patient must, however, give the self-regulating power of his organism fair play by living in accordance with the laws of nature and the dictates of common sense. There remains to be noticed the modicum of truth which is enshrined in this extraordinary system of delusion. The theories are false, the treatment when honestly pursued on the lines Hahnemann laid down for his disciples, is a purely expectant treatment by faith, diet, and hygienic measures. It is a drugless treatment. What is called expectant attention on the part of the patient who believed in the system, and diligent attention to diet and regimen on the part of the physician, amply account for the undoubted good results achieved. The pilules and tinctures we may place alongside of the red rag and the peacock's feather of the Hindoo, and consider them of equal value.

In the early days of homœopathy, some honourable and upright medical men of undoubted ability espoused the tenets of Hahnemann. In their hands diseases which most allopathic practitioners of those days considered very dangerous, and likely to be fatal (if not actively treated by orthodox methods), got well in about the same proportion and generally quite as

speedily under the administration of homœopathic globules as under the most active and heroic measures of the orthodox allopath. What these measures were you will gather from this extract from a letter written by Dr. Andrew Combe fifty years ago. Speaking of the change which took place in medical practice in his day, he says:—"When I first opened my professional eyes, the lancet was in great vigour, and a well employed medical man almost lived in a stream of blood. Vigorous practice was the order of the day. In typhus, as well as in inflammation, the lancet was the sheet-anchor of many, and quantities of strong purgatives were administered sufficient to put disease of every shape and hue to the rout. Take the same men of vigour now, at a distance of twenty-four years, and they will tell a different tale. It is no longer, be bold and decided and prompt in what you do, but be watchful, and trust something to nature."

From what we now know of the natural course and cure of acute inflammations and of fevers, I think it likely that in that large class of diseases the homœopaths had the best of it. Believing, like their contemporaries, that nature alone was insufficient to cure such maladies, the educated votaries of the new system pointed to the cures which their globules and attenuated tinctures had brought about. To every objection to their theory they replied, like their master, "that vain declamation must cease in the presence of infallible experience." This extraordinary uniformity of results, shown by the most opposite and contradictory forms of treatment in certain diseases, led a considerable number of philosophic physicians, even before the days of homœopathy, to adopt a purely expectant system. They administered substances as inert as coloured water and bread pills, which were given solely for the purpose of satisfying the universal craving of patients for active treatment by drugs. Under this system, when proper attention was paid to diet and regimen, the classes of disease in which the homœopathists earned their laurels recovered with equal celerity. Sir John Forbes tells us of a "highly respected and very learned physician who practised" in Edinburgh fifty years ago. "On some one boasting before him of the marvellous cures wrought by the small doses of the homœopathists, he said, 'this was no peculiar cause for boasting, as he himself had for the last two years been curing his patients with even less—viz., with nothing at all.'" In these various ways proof was gradually accumulated which satisfied the thinking part of the profession that the drug treatment of the *symptoms* of disease has very little to do with the re-

removal of human ailments. If you remove the causes of disease, there exists in the mechanism of the human body a self-regulating power, by which it sooner or later gets rid of the sympathetic derangements of function. When the disease causes have not been so powerful as to alter or destroy the structure of an organ, it gets back to its normal condition of health without the aid of drugs, by the operations of this *vis medicatrix nature*. The old practice of the bleeding, blistering and purging doctor might, in many cases, be compared truthfully to the practice of the Hindoo groom, who spread a towel over the back of his horse to make the grain digest, and insisted upon it that the horse would die if the towel were removed. Unfortunately, their treatment was not quite so harmless as the towel or homœopathic globule.

As a teacher of sanitary science, I am glad to see that the great importance of hygiene is gradually becoming more generally recognised, both by the public and by the medical profession. In the inaugural address, delivered a few weeks ago by Professor Tweedy, in University College, London, I find the following passage. Speaking of the science of medicine, he says—"To most fresh men it might seem nothing more than the art of diagnosing disease and prescribing remedies. It is this, but it is something more. Medicine is essentially the science of health. The medical profession would still retain the most important part of its duties, and all, or more than all, its present share of honour if every drug in the pharmacopœia were to become extinct." At the London School of Medicine for Women, Dr. Horatio Donkin told his audience that the tendency of modern medical knowledge pointed to methods of treatment, quite separate in the main from drug giving; that the treatment of disease in general must be chiefly hygienic, and that much more was to be hoped from the study of the therapeutics of air, warmth, diet, and exercise than by the administration of substances called drugs alien to the human body." I shall only trouble you with one more extract. The article, which occupies the place of honour in the *British Quarterly Review* of July last, is a very elaborate article, by a layman, on the relation of drugs to the treatment of disease in the present day. The author tells us that in the best professional circles it is incorrect and unscientific to talk of the cure of disease. That the vulgar notion of cure is a delusion. That every attack of disease leaves some mark behind in the shape of altered tissue or diminution of life power, and that in no very distant era we may hope for an almost drugless medicine which shall combat

disease and restore health by a hygienic regimen of deep and elaborate skill—not only a prophylactic, but a curative hygiene—for he says now that a curative hygiene is rapidly assuming a chief place in therapeutics, as the true and natural expression of latter day science it must surely be recognised by some such definite expression. He admits that there are about a dozen useful drugs, but the prescription of the future will rather consist in the reduction of daily life to special and scientific adaptations of the old quick elements, fire, air, earth, and water.” This somewhat vague phrase means that, given pure fresh air, the modifications of it, which result from varying amounts of moisture, from density at different levels, from compression, from the addition of oxygen by artificial means, and from temperature, may be called into action in the treatment of disease. That water may be used, as in hydropathy, as a medicine for the application of heat and cold, increasing or diminishing the temperature of the body, bracing or relaxing the blood-vessels, and so increasing or diminishing the blood supply in a diseased part. That light, sunshine, and exercise in its endless variety of forms may be applied as remedies. That a careful selection of the food, clothing, and occupation of the patient will be necessary. That the hygienic influences of soil and climate must be studied, because it is a physical and not a physiological force. Owing to the immaturity and consequent imperfections of curative hygiene, he thinks we have not arrived at the proper time for abandoning drugs, and that some benefit may still be derived from their use in the hands of careful physicians.

There was a time when I would have given my assent to these pessimistic views of the value of the drug treatment of disease without much qualification. I well remember, a few days after my graduation as a Bachelor of Medicine, sitting in the house-surgeon's room of a Glasgow Hospital, discussing with two of my fellow-graduates this very question of the powers and place which drug treatment should occupy in a rational system of medicine. We unanimously concluded that in the matter of real influence over the progress of disease in general, the physician's power was extremely weak—hopelessly behind the power of the surgeon in his department. We thought the medical branch of the profession mainly useful to the public because, when a man is ill, he is generally anxious to find out what is the matter with him, and what the probable cause and result of his illness will be. Consequently we thought that the diagnostic and prognostic skill of the physician would always be in demand. Beyond the relief of

pain and the removal of disagreeable symptoms, we expected very little help from drugs. In the early days of practice we were inclined to take a very hopeless view of organic diseases generally, and if we found a man with albumen or sugar in his urine, we immediately concluded that his days were numbered. The hospital experience of the student puts medical practice before his eyes in its most melancholy aspect, and is, I think, very apt to give a sombre tinge to the prognosis of a young practitioner. We rarely saw the beginnings of disease in the Hospital. The wards which I frequented were often filled with hopeless cases of advanced organic disease—phthisis pulmonalis, Bright's disease, heart disease, cancer, aneurism. Many of these cases only gravitated to the Hospital when they despaired of getting any further benefit from their medical advisers outside. They came in to die, or after some little alleviation of their symptoms they were sent out to die. A few weeks of hopeless treatment were directed more to relieve their sufferings than to remove their disease. In most of the cases important parts of the affected organs had been destroyed before they entered the wards. It is perfectly certain that neither drug nor hygienic appliance, however deep and elaborate the skill of the physician, will ever make a part of an organ which has been destroyed grow again. You may as reasonably hope, by applications to the stump of an amputated thigh, to see it bud forth and develop a new leg and foot. We did see a good sprinkling of acute inflammatory cases, and of minor ailments, which generally recovered, but the sad cases were the great majority. On the other hand, the experience of the past seventeen years in private practice has taught me that the immense variety of functional derangements, and of other minor diseases, form the great bulk of the practitioner's daily work. It is consequently, in the main, cheerful work, enlivened by numerous recoveries. One constantly sees good results from the treatment of conditions which would, untreated, most assuredly end in misery and disaster. The saddening episodes, which are, alas, unavoidable, do not make the same impression on a man after he has been a few years in practice. With increased experience he becomes not, I hope, less sympathetic and pitiful, but certainly more philosophic. Having done his duty, his life is too full of occupation to waste it in unavailing regrets. These years of experience as a general practitioner have increased my respect for drugs. I now look upon them as most important aids in the cure of disease—most satisfactory when they act directly on its

causes, but sometimes, when properly selected on rational grounds, extremely useful in combating disagreeable symptoms. Take a very simple example:—A patient comes to you suffering from nervous symptoms, such as pain in the head, giddiness, itchings at the nose, grinding of the teeth at night, irritability of temper; he has lost flesh, his appetite is capricious, and he has uncomfortable feelings in his bowels. You make an exhaustive examination of his whole body, and you can discover no trace of organic disease; you treat him for nervousness and dyspepsia, but he gets no better; at length you discover that he is passing occasionally from his bowels the jointed segments of the tape worm. You have discovered the cause of all these symptoms. You give a remedy which poisons the tape worm. It is dislodged from the bowel, and the symptoms speedily disappear. Or again, take a case of a limited pleurisy, which we may suppose to arise from exposure to cold. You place the patient in proper hygienic conditions, and you know that the fever, and the pain, and the subsequent effused lymph and serum in the pleura will all disappear in a natural sequence unaided by drugs. But the patient suffers intense pain with every breath he draws. You administer a subcutaneous injection of morphia, which dulls the sensitive nerves, and although by so doing you do not remove his disease, you relieve his suffering.

Even if it were the case that, as the writer in the *British Quarterly* puts it, a curative hygiene could be elaborated which would do all the work which we now expect from medicines, I am afraid that, in the case of many diseases, its demands on the appetites, the pleasures, the social interests, and the vices of the richer classes would be too great to permit of its ever becoming popular, or of meeting with general acceptance. With regard to the poorer classes, what a mockery it would be to profess to be able to deal with the diseases of the poverty stricken and toiling millions in our large cities solely by a curative hygiene. Take a man who is suffering from a disease fostered by breathing the mephitic atmosphere of a manufacturing city, by living in an unwholesome house, and by labouring for his daily bread and for the support of his family at an unsuitable occupation. To prescribe for that man a curative hygiene comprising such elements as pure air, a carefully constructed commodious house, selected and well cooked food, change of climate, and easy occupation, would be like telling the damned in hell of the advantages to be derived from a residence in heaven. Tell an artizan with a feeble town-bred frame, with a weakly wife

and a family of delicate children, that he must change his house, his occupation, his soil, and his climate, and he will tell you that the only occupation at which he can earn a livelihood is that to which he has been trained—that his trade is localized on this soil and in this climate, that he is incapable of the manual labour of the colonies, and that if he were not, he has no money to take him there. He comes to you to relieve him at least of his pain, if you cannot cure his disease by some method less expensive than curative hygiene suggests. If drugs and simple regimen will do nothing for him, he must suffer or he must die.

Within the memory of the present generation we have made great advances not only in our knowledge of the processes of disease but also of the effects of medicinal agents. We have been able to recognise and separate the active principles of our drugs—to demonstrate their presence in the blood, in the organs, and in the tissues of the patient, and to trace their course through his body. We generally know what changes they undergo in the body and whether they are eliminated, and if so, by what channels. We know, as the result of direct experiment and careful observation, that we have large numbers of medicinal substances which have a remarkable power when circulating in the blood of selecting particular organs, on which they expend very specific effects. They increase or diminish the blood supply of the organ, they stimulate or check its function of secretion or excretion.

In the multifarious functional derangements, whether of brain, of heart, of stomach, of bowels, or of kidneys, we have, through the influence of some drug, a means of either controlling over-action or of stimulating to increased action, as the case may require. It is true that in the majority of such cases the derangement of function has been brought about by non-hygienic conditions, and if the patient can be induced to live according to the dictates of curative hygiene he will, sooner or later, get well without the aid of drugs. But we must always bear in mind the melancholy fact that patients cannot always live as we would like them to do; or, if they can, they will not; that even those who can and do follow the prescribed regimen desire to recover as speedily as possible, and that a drug may act like a spur or whip to hasten the recovery. Then there are cases in which the organ has contracted a bad habit either of overaction or of inaction, and becomes so confirmed in the bad habit that it requires a combination of the most powerful specific drugs with the most careful regulation of diet and regimen to effect a cure.

Even where the disease has gone so far as to irreparably destroy a portion of an organ, and neither curative hygiene nor drug can restore it, even in such a hopeless looking case, the greatest assistance may be got from properly selected remedies. Take one of the most hopeless of all organic diseases, valvular disease of the heart. You cannot restore the integrity of the valve which has been partially destroyed by previous attacks of inflammation or by some other disease process. But by the help of an appropriate drug—such as digitalis—you may strengthen and increase the power of the whole muscular tissue of the heart so much, that this increase of power compensates for the defect in the valve, at least for a time; your patient may thus be enabled to pursue his occupation for months with comparative comfort, when, if he were left to nature and hygiene, he would be a helpless invalid. Besides these protean forms of functional and organic diseases we have a large class of diseases which arise from contagion or infection, these terms being synonymous. A germ of poisonous matter gets into the tissues of the patient, and multiplies there into thousands of similar germs, giving rise in the process of self-multiplication to fever and functional organic disturbance. If the patient survives for a few weeks these germs are at length cast out of the body and recovery takes place. It is doubtful whether we get much help from drugs in these specific fevers. I do not think the average of recoveries would be diminished very much by a drugless treatment. In the present state of our knowledge we believe that hygienic measures are in such cases all important in cure as in prevention. I think it quite possible that drugs may yet be discovered which will revolutionise the treatment of fevers. I hope that remedies may yet be found which will act like quinine in ague, both as preventive and cure. Some of you gentlemen may yet discover a treatment which will render the human body unattractive to the germs of scarlet fever, of cholera, of tubercular disease, or of typhoid fever, even as the presence of quinine or arsenic in the tissues of the body render it unattractive to the germs of malarial diseases. With regard to the class of diseases which arise from a deficiency of certain elements in the blood, taking scurvy as an example, we may look upon lime juice not only as a specific prophylactic but also as a specific curative agent. For the same reason, because it supplies the deficiency, iron may be regarded as a reliable specific remedy in chlorosis. In all these cases we have some rational theory of the action of the drug. Last of all we come to the lamentable and painful class of diseases, the fatal pro-

gress of which we cannot arrest either by drug, diet, or regimen. Even here, where curative hygiene cannot help us, where no healing virtue can be got from air, water, soil, or climate, have we not narcotics and sedatives, which come like ministering angels at the physician's command to charm away the discomforts of the sufferer, to soothe his pain and to procure for him nights of peaceful sleep, in which he can forget the miseries from which death would otherwise be his only refuge.

The pessimistic views expressed in the papers, from which I have quoted, as to a revolution in our treatment which will lead to the early extinction of the druggist class, are the natural reaction from views which were superstitious and irrational. From the error of expecting far too much from drugs we are now in danger of going to the opposite extreme, and of ignoring their true place and power. The rapid rise of sanitary science has also something to do with this disparagement of remedial agents. The great achievements of preventive medicine and of the sanitary reforms which exert their beneficent effects upon the masses of the people offer a strong contrast, in some points of view, to the more uncertain and feebleness of curative medicine ministering to individual units of the population. But this view is only taken by the educated and philosophic few.

Doctors of the purely curative order need not look upon their craft as in any danger for some generations to come. People will require a great deal of education and development of the unselfish part of their nature before they place the public interest as higher than their own. The average man in bodily pain or in peril of life, looks upon his own safety as the greatest interest in the world; and he pays the doctor better and respects him more for a benefit he has received in his own person than either he or the community ever dreams of doing for the prevention of disease, or any other benefit, which requires to be proven by statistics. In private practice we do not generally get much credit for the disease we prevent in households. A man has the feeling that he might not have got any harm from the non-hygienic condition we have prevailed upon him to remove, and he sometimes owes us a grudge for the trouble and expense to which we have put him. Hard cash expended is a serious reality, which weighs heavy in the balance against dangers, however real and however deadly, which he cannot see. But apart altogether from what the physician can do in preventing disease, and, looking at his work only in its curative aspect, it is in the interest of the doctor himself to have a thorough training in hygiene.

The aim of every true doctor is to get his patient as rapidly and as completely free from his disease as he can by the use of every means at his command. It is in the belief that he will do so that men and women entrust themselves and their children to his care. It is on the ability and promptitude with which the doctor relieves them of the inconveniences, the sufferings, and the danger which their maladies entail, that his reputation and success in life most surely depend.

In every house in which he treats a patient he ought to be able to recognise and suggest a remedy for defects of ventilation and for defects of sewerage. These matters should not be left to ignorant tradesmen, because there can be no doubt that diseases of every kind assume a more serious character, and are more intractable in ill ventilated houses, or an atmosphere tainted with sewage gases. He should be able to point out any error in the position of well or cistern which renders it liable to contamination, and to apply simple tests to ascertain the quality of the water. He should be able to recognise adulterations in bread and to detect the various dangerous conditions of the milk supply, or of butcher meat, which may seriously affect the recovery of his patient. He should be able to recognise dampness in walls, and to point out its causes and its dangers—to detect arsenic in papers and bed hangings. He should be carefully educated in the laws of infection and disinfection, in the nature of soils and in the effects of climate. In short, I hold a man is not properly equipped as a physician who has not studied these subjects, both in their prophylactic and in their curative aspects, as carefully as he has studied *materia medica* and pharmacy. I therefore hope that in any reconsideration of the curriculum of the medical student hygiene will be made an integral part of the course of study. I think that such a reform is much more urgently called for, in the interests of the public, than any mere alteration of the examining boards. At the present time the majority of medical students get no adequate instruction in sanitary science. They frequently pass all their professional examinations, and obtain a qualification to practise, without having been asked a single question, written or oral, having any bearing on such important matters as disinfection, drainage, water supply, and ventilation. I sympathise with the already overburdened medical student, who, to use the words of Professor Huxley, is in danger of having his intellectual back broken.

Therefore, to make room for such important subjects as

hygiene, the curriculum must be lightened by the elimination of everything which is not essential to the right apprehension of the principles and practice of medicine and surgery. I would relegate elementary chemistry and botany to the preliminary examination. For the mere licence to practise, I would dispense entirely with zoology and comparative anatomy. I would restrict the examination in materia medica to the doses and properties of drugs and their therapeutic actions. Dispensing entirely with the long catalogue of their chemical and botanical properties, and of their pharmacopœial preparations, most of which the student learns to forget as soon as possible after his examination is over. After such a change, men might not write such elaborate prescriptions, but they would be better physicians. The druggists would be the only sufferers. The small amount of knowledge which the average student is compelled to acquire of these superfluous subjects disappears so speedily from his mind that it has no real influence on his after life; and yet, for this fleeting shadow of knowledge, important practical subjects, such as hygiene, are entirely ignored in the present curriculum. I hold that the interests of the public are sacrificed by compelling the student to crush the study of matters which have only a remote connection with medical science into the four short years which should be devoted to subjects which have a direct bearing on his future work. It would still be open to our universities and medical corporations to give their higher degrees and diplomas to those who are able and willing to devote additional time to such subjects as zoology, comparative anatomy, and pathological chemistry, or to any other alternative course of study which might be supposed to fit a man for original work as an investigator, and help him to solve difficult problems regarding the nature and origin of disease. There can be no doubt, that to the man who has the talent and the money which are required to enable him to give his life to such important work, a comprehensive knowledge of such subjects, and of every other branch of physical science which he can master, is of the highest value.

In conclusion, gentlemen, I have to offer the students a few words of advice and guidance. Time warns me that they must be very few. I think I may say to you students that you are now come to the epoch of your life which is to determine your future success or failure. By the habits which you now form, and by the companionship which you now enter upon, your future character will be moulded for weal or for woe. Begin this session with the determination to make

it a session of steady, persevering effort. Do not, I beseech you, allow your time and your opportunities to be frittered away in trivial amusements. Above all, listen not to the witching voices of the many passions which, like the fabled sirens, would lure you on to ruin; be temperate, be chaste; follow the guidance of your better nature, and bear in mind that not only will your own future happiness and success in life depend on the use you make of your present opportunities, but that you will by and bye be entrusted with the sacred interests of suffering humanity. Be warned now that on the knowledge and on the skill which you acquire during the four short years of your studentship will often depend the speedy recovery or the lingering illness, the life or the death, of your fellow-creatures. You cannot place before your eyes an ideal too high to strive for. All the qualities of mind and heart which go to make the noblest character will have the fullest scope and room for development in a life devoted to the interests of science and humanity.

A CASE OF SEVERE CEREBRAL CONCUSSION IN WHICH THE BROMIDE OF POTASSIUM IN LARGE DOSES AVERTED DEATH.

By JOHN M'DONALD, M.D., NORTH UIST.

THE patient was a man aged 20 years; a shepherd, well developed and of healthy constitution.

A party of five (of which the patient was one) started between nine and ten o'clock A.M., on Easter Sunday of 1882, to ascend some of the highest peaks of the Coolin Hills. The ascent was accomplished without any difficulty. The patient, being well acquainted with the best paths, acted as leader, and was in excellent spirits up to the time of the accident. At about five P.M., the descent having been begun about twenty minutes previously, to the consternation and horror of the rest of the party, the patient fell head foremost to a ledge several feet below where he was standing. On taking him up it was found that his head was jammed between two stones. His nose bled freely for some time after they had taken him up. On account of the rugged and steep nature of the way by which they would require to bring him to a house, and the

short period of daylight they had yet before them, there was no time to be lost. One of the party was at once despatched to Glen Brittle House to obtain help. Mr. Laidlaw, who watched their movements with the glass the whole day, noticed that they halted at a most unnatural place; and, after a consultation with Captain Cameron, they came to the conclusion that some one was hurt, and immediately a party was sent to their aid with blankets and stimulants, &c. They met the messenger from the seat of accident on their way up, and, the nature of the accident having been ascertained, more men and other conveniences were sent for.

The construction of the ambulance they extemporised is well worthy of mention. Two long poles were tied together by two cross poles at a distance to suit the breadth of the patient. He was supported and tied in, in a half sitting posture, by broad strips of strong blanketing firmly sewed round the side poles. By means of this ambulance they were enabled to keep him steadily in one position, to distribute his weight among eight persons, and to relieve each other in getting over difficult places. Lanterns were also of great use to them. They arrived at Glen Brittle House with him about 1:30 A.M.

On their arrival the patient was found quite unconscious, pulse 58, full and regular, surface somewhat cold, the breathing quite tranquil, pupils equal and slightly dilated. He could stand on his legs when supported. When laid in his bed he looked as if he enjoyed a gentle sleep, only his eyelids were open as a rule. All the tests that could be applied showed that there was no loss of muscular power. He was, however, deprived completely of his hearing, sight, speech, and taste to a great extent. Tactile feeling was to a great degree blunted. Smell also seemed to have been wanting. He showed some signs of restlessness when his bowels were about to be moved and when his bladder was full. In short, he only retained such signs of life as are met with in the most primitive organisms—viz., motion, limited sensation, assimilation, and excretion.

There were abrasions on his limbs, also a scratched bruise behind his left ear. They required no dressing and healed up very quickly.

He was cautiously fed on milk and tea, gruel, and such things. On Monday afternoon a full dose of castor oil, with two drops of croton oil, was administered, and a mixture of ice and snow from the Coolins kept to his head for fear of a reaction. Leeches were applied behind the left ear on Monday night.

The pulse gradually rose to the normal, and the patient progressed favourably until Thursday morning (the fourth day), when convulsions of a severe type set in.

When I saw him at 5 a.m. on Thursday he had a severe fit every twelve minutes. Each coming fit began by rapid twitchings under the left eye which gradually extended over the muscles of expression and down the chest, trunk, and lower limbs, like a wave. Towards the end of each fit he shook the bed violently, and the venous system became quite congested on account of the severe spasm that seized the respiratory muscles. He appeared also to have been choking for want of breath, and a good deal of phlegm lodged about his mouth and pharynx.

A dose of forty grains of the potassic bromide was prepared to be given by the mouth, but the act of swallowing brought on a fit immediately, and I had to give that up at once. I then waited, thinking the convulsions would exhaust themselves, and that when he got weaker they would stop without any interference.

At about 10:30 a.m. matters became extremely urgent, and every fit threatened to carry him off. There were only one and a-half minutes of an interval between them, and now, if anything could possibly be done, it should be done quickly.

Ninety grains of the potassic bromide were dissolved in a breakfastcupful of tepid water and injected into the rectum. A fit came on in the middle of the operation, but there was nothing lost. It was surprising to see how rapidly the medicine was absorbed and how the fits got fewer and weaker until they disappeared altogether. He got forty grains by the mouth every eight hours at first, and thirty grains three times a-day afterwards. During the first fortnight, if the bromide was not given regularly, the twitching of the muscles invariably appeared when the effect of the previous dose was spent. It was given to him regularly until all tendency to a return had disappeared, which period extended over three weeks. Towards the end of the fourth week he could recognise his old friends, and always replied "Yes" to every question. After this his progress was even and uninterrupted. When he was shown any object one could see that he only got a short glimpse of it when he was lost in a maze, the very effort of acquiring a perception seemed to paralyze his senses.

The efforts to write his name, Donald MacCrimmon, show an uninterrupted progress and explain better than any description the progress the case was making. He wrote the end of it as slowly and deliberately as the beginning. One could see

that after he was done he recognised it was not done properly. His speech only came back very slowly, and he had to a great extent to learn names over again. He ultimately made a complete recovery, and said he was as well as ever when I saw him three months ago. The muscles of his face, however, retained more or less of the painful expression they acquired from the convulsions.

Remarks.—The accident in this case probably arose from cerebral anæmia, producing a *faint*. When ascending, the heart works under high pressure, on account of the breath being kept longer in, and the muscles of the chest and abdomen being in action. In descending, the muscles are relaxed, and the heart, under the altered circumstances, fails at times to supply the brain with the necessary amount of blood, and then giddiness is produced. The effect of ascending and descending on the circulation and the heart is a subject to which mountain climbers would do well to pay more attention. If the accident had happened through his losing his balance, he would probably have broken or dislocated a limb trying to help himself. If it had been occasioned by an epileptic seizure, he probably could not have got over his fits so well.

(2.) The convulsive fits that threatened to carry him off on the morning of the fourth day, could be accounted for as follows—viz., the paralysed sensory centres had by this time begun to recover their normal function, and feeling irritated called upon their most humble servants, the motor nerves, to give relief in some way. Another view of the matter is that the centres of co-ordinate movements were still in abeyance, while the sensory and motor powers were liberated. The chief aim of the treatment was to soothe the sensory parts until the irritation was lessened, and for this purpose the bromide was incomparably better suited than any drug I know. The very fact that it can be given in large doses regularly for a long time without any inconvenience to the patient, made it in this case everything that could be desired.

(3.) The fact that the effect of the shock stopped at a well defined line, taken in connection with the history of the case, points to two important conclusions—viz., (1.). That the cortical part of the brain substance is the seat of the special senses and higher intelligence, for it is evident that the parts in contiguity with the cranium must necessarily have suffered the greater part of the shock in this case. (2.) That the structures in which the higher faculties have their abode are made up of more easily injured, and more delicate texture; for if this were not the case, it is impossible to conceive that the

line could be so well defined, as it was in this case, by any matter of chance.

(4.) The only symptom pointing to localisation of cerebral function was the late aphasia—the greatest amount of injury externally was above and behind the left ear; and speech was the latest faculty of being restored.

CURRENT TOPICS.

PATHOLOGICAL AND CLINICAL SOCIETY.—We beg to direct the attention of our readers to the new arrangement which has been entered on in regard to the publication of the Transactions of this Society. It has been resolved to report the meetings more fully in future and to publish these reports along with any papers read in the number of the *Journal* following the meeting. By this means the earliest possible publication of the contributions to the Society will be effected. In the present issue we publish the reports of two meetings, and we have done so in spite of great pressure on our space, in order to give the new system a fair start. It will add considerably to the publicity of these reports, that reprints of them, as well as of the papers read at the Society, will be collected and bound in volumes at the end of the session, so as to be sent to the principal medical libraries in the country. This will also ensure the wide circulation and preservation of the papers published in this *Journal*.

We also learn that it is intended to hold a discussion in this Society during the month of February, on some of the aspects of the subject of ALBUMINURIA. It is expected that, besides members of the Society, strangers from a distance who have devoted special attention to this subject will take part in the discussion. The success of the discussion on Tuberculosis three years ago has no doubt encouraged the Council to propose this one.

THE BUCHANAN STREET FIRE.—Our readers would learn with regret that in the great fire in Buchanan Street at the beginning of November the publishing and printing office of this *Journal* was completely destroyed. The building was separated from that of Messrs Wylie & Loehhead by the extensive premises of the *Glasgow Herald*, and it is very extraordinary to see the total ruin of the building farther removed from the fire, while that nearer stands intact. It

will have been noticed that our publisher, Mr. Macdougall, has called the attention of the authorities to what he alleges to have been the carelessness of the fire brigade; and, certainly, the fact mentioned above is sufficiently striking when actually contemplated from a neighbouring building. The fire in these premises was so unexpected and sudden that nothing was saved. All the type, plant, and stock were destroyed. Fortunately, the entire November issue had been sent out, but all back numbers for some years have been consumed, and as the set-up type has been destroyed we have been unable to supply writers of original articles with their usual reprints. Mr. Macdougall has obtained temporary possession of his former premises, and it is creditable to him that although he has had to furnish the office entirely anew, with type, machines, gas-engine, paper, &c., the *Journal* is not delayed in its publication beyond the first of the month.

REVUE BIBLIOGRAPHIQUE UNIVERSELLE DES SCIENCES MÉDICALES, avec *Index alphabétique annuel*, indiquant les matières contenues dans les journaux spéciaux et les ouvrages publiés en toutes langues et dans tous les pays, classés d'après l'ordre méthodique des sujets traités, suivi d'une *Table alphabétique des auteurs*, publication mensuelle dirigée par le Docteur C^{te}. Meyners d'Estrey.

L'objet de cette Revue est de mettre le praticien et l'auteur à même de retrouver immédiatement les sources à consulter pour un sujet quelconque. La *Revue bibliographique* formera tous les ans un fort volume grand in-8° d'au moins 600 pages. Prix de l'abonnement: 30 fr. par an. Pour s'abonner, il suffit d'écrire à M. Ch. Grémiaux, secrétaire général, place Saint-Michel, 6, Paris.

REVIEWS.

Report of the Smoke Abatement Committee, 1882, with Reports of the Jurors of the Exhibition at South Kensington, and Reports of the Testing Engineer, to which are added the Official Reports on the Manchester Exhibition, and 76 Plates of Illustrations and 34 Tables of Results of Tests of Heating and Cooking Grates and Stoves, Steam Boiler Appliances, Fuels, &c. London: Smith, Elder & Co. 1883.

SMOKE affords no exception to the history of nuisances and unhealthy and obnoxious conditions of all kinds. Its evils

have been recognised and denounced long before any systematic attempts were made to remove or abate them. Almost contemporary with the general use of coal in London—which was the only city of size sufficient to create, by the aggregation of smoke-production on a limited area, a local nuisance—complaints were made by observant individuals of the injurious character of smoke. Sir Hugh Platt, at the close of the sixteenth century, made suggestions for its abatement. In 1661 Evelyn published a book—*Fumifugium; or the Inconvenience of London's Smoke and Air Dissipated*—in which he proposed “that by an Act of the present Parliament this infernal nuisance be reformed.” In 1689 the great mental philosopher, Locke, who suffered from a weak chest, wrote from London to his friend, Limboreh, complaining of the injury to his health “from the pestilent smoke of this city” (*malignus hujus urbis fumus*). Benjamin Franklin, 1745, advocated improvements in domestic fire-places, with a view to the prevention of smoke; while in 1785 James Watt suggested the use of smoke-consuming boiler furnaces, fed with fuel introduced behind the incandescent mass. In the first decade of the present century, Count Rumford wrote that he never “viewed from a distance the black cloud of unconsumed coal which hangs over London without wishing to be able to compute the immense number of chaldrons of coal of which it is composed.”

These were but the usual individual expressions of opinion which precede the elevation of sanitary questions into subjects of national interest. This epoch in the smoke question was not reached until 1819, when a Select Committee of the House of Commons was appointed “to enquire how far persons using steam engines and furnaces could erect them in a manner less prejudicial to public health and comfort.” In 1843 another Select Committee recommended “that a bill should be brought into Parliament to prohibit the production of smoke from furnaces and steam engines.” In 1845 yet another Committee reported upon the subject. In 1880 the National Smoke Abatement Institution was inaugurated through the joint action of Mr. Ernest Hart in the National Health Society, and of Miss Octavia Hill in the Kyrle Society. To the efforts of a committee of this institution we owe the Smoke Abatement Exhibitions of London and Manchester, and the invaluable Report to which we now direct the attention of the readers of this *Journal*—a handsome quarto volume, consisting of some 200 pages of letterpress and 76 plates of domestic grates and stoves, gas-heating and cooking apparatus, and steam boiler appliances.

The evil influences of smoke are now no longer confined to London. They pervade all our manufacturing towns; and where these are closely placed, or where certain industries are prosecuted over wide tracks of country, as in Lancashire and Lanarkshire, they give a character to entire counties. The observations of Frankland and Aitken enable us, in some measure, to understand the physical phenomena of smoke as an ingredient in the atmosphere. In the words of the former, "From our manufactories and domestic fires vast aggregate quantities of coal tar and paraffin oil are daily distilled into the atmosphere, and condensing upon or attaching themselves to the watery spherules of fog or cloud, must of necessity coat these latter with an oily film, which would in all probability retard the evaporation of the water, and the consequent saturation of the interstitial air." Aitken has proved by ingenious and beautiful experiments that these watery spherules form around nuclei of microscopic dust particles suspended in the air. The sulphur products of coal combustion afford the most active centres of condensation, and the distillates of smoke condense upon these spherules. The ultimate result is the formation of these dense irrespirable fogs which, under certain conditions of moisture, temperature, and barometric pressure, envelop the inhabitants of London, Glasgow, and other towns, and run up the death-rates for weeks to 30, 50, or even 60 per thousand. Indeed, there seems to be no limit to their lethal influence, if these fogs continue long enough, so that the denizens of these cities live upon the verge of a grand catastrophe. These are the phenomenal results of smoke, but the chronic influence all the year round on health, comfort, and materials, of the ordinary atmosphere of modern towns of any size, and of manufacturing districts, though less striking, is equally real and detrimental. In the course of his analyses of the air of Glasgow, Mr. Dunnachie found that the minute holes in the "roses" of his tubes, through which the air was aspirated, were constantly obstructed by black, tarry matter. In fact, the coal tar which used to be poured from gas works into rivers and streams, until the nuisance became intolerable, and the manufacturers were *compelled* to discover the invaluable uses of this hitherto "waste product," is still thrown into the atmosphere wherever coal is burned. These distillates are conjoined with carbon, sulphur, acids, and ammonia.

The evils of this condition of the atmosphere may be roughly classified. There is, first, the mechanical influence of an envelope expanded over towns and districts in excluding the sunlight and diminishing its actinic power. In his address,

as President of the British Association, in Glasgow, in 1876, Professor Andrews said—"The depressing effect of this atmosphere upon the working population can scarcely be overrated. Their pale, I had almost said etiolated, faces are a sure indication of the absence of the vivifying influence of the solar rays, so essential to the maintenance of vigorous health." Dr. Angus Smith has expressed "a conviction that all South Lancashire was suffering in vegetation, and that the towns are in the same way rendered inferior in atmosphere, partly from the want of light, although to some extent from the acid of smoke. The black carbon as an agent of darkness is not to be slighted" (*Seventeenth Alkali Report*, p. 17). Add to their influence, simply as excluding light, the direct effects of these foreign ingredients in the air which we breathe, and which rests upon the surface of the land, arising from their physical and chemical properties. They irritate our lungs; they kill vegetation; they defile, corrode, and destroy the materials of our houses, their contents, and our clothing. Two hundred years ago Evelyn gave vigorous expression to his estimate of the material injury inflicted upon London by smoke. "This is that pernicious smoake which sulleys all her glory, superinducing a sooty crust or furr upon all that it lights, spoiling the moveables, tarnishing the plate, gildings, and furniture, and corroding the very iron bars and hardest stones with those piercing and acrimonious spirits which accompany its sulphure." The smoke of Scotch coal produces all those destructive effects with tenfold energy as compared with that of the coal burned in London. This is no mere matter of finical æstheticism—it is a serious economic question. Calculations have been made of the large sums saved to the inhabitants of Glasgow in soap by the introduction of Loch Katrine water. If in like manner all the losses, in detail insignificant but in the aggregate immense, sustained by corrosions and defilements caused by our polluted atmosphere could be aggregated, the sum would certainly convince the community that aerial dirt, like dirt in every other form, is a most expensive luxury. We use the word advisedly, for the inclination of our rulers is to estimate our prosperity by the depth of the shade of black smoke emitted by our factory stalks, and to regard a pure atmosphere as of parallel significance to grass growing in our streets. There never was a greater fallacy. The material saving, altogether apart from the saving in health and life, of abolishing this "pestilent smoke" can scarcely be estimated; and especially if we remember that its ingredients are in themselves valuable, and that their money-value, if economised,

falls to be added to the expense which, wasted, they entail upon the community at large.

This brings us to the prevention of the smoke-nuisance, because the money lost by the continuance of the nuisance must, if demonstrated, be the prime mover in leading smoke-producers to reform their ways. Taking the manufacture of coke as an illustration in one branch only of smoke-production of the most wanton wastefulness, Dr. Angus Smith has demonstrated from accurate data of the trade as followed in this country, that if the Bességes method of making coke were adopted, and the distilled products condensed, in place of being thrown off into the air, the value of the economized sulphate of ammonia and tar would amount to £3,510,000, and the application of the sulphate to the land "would give an increase of crops equal to eight million pounds at least" (*Fourteenth and Fifteenth Alkali Reports*, pp. 63-66.) These are not the words of an unpractical visionary. Dr. Smith is one of the coolest, most cautious scientific thinkers of the age—a man in full sympathy with the reasonable difficulties of manufacturers, as his administration of the Alkali Acts has amply shown. He has always carried the alkali manufacturers with him. This wealthy and influential body of men has never called in question his interference with their industry. Yet, having described this method of coke making, not on the basis of mere laboratory experiment, but as actually carried out on the largest scale in Belgium, Dr. Smith has to confess that in this country "I hear of *one* great firm of coke manufacturers taking up the method, but of no other." This is merely a specially outrageous example of the inertia opposed by manufacturing smoke-producers of all kinds throughout the country to the suppression of the nuisance. Yet all in various degrees and in various ways, would profit by adopting a more cleanly method of carrying on their processes.

How is this much-needed reform to be effected? First, by educating the public and the smoke-producers. By the latter we mean specially those who use coal for trade purposes, although in point of fact the public at large are also smoke-producers, inasmuch as a necessary part of the economy of every householder is the use of coal for domestic purposes. Still, the smoke of manufacturers is a greater evil than that of private houses. As Dr. Smith has observed, a ton of coal per annum per person is about the average consumpt. As 80 to 100 persons per acre is the density of our densest towns, their domestic consumption of coal will range from 80 to 100 tons per acre per annum, whereas there are works which burn

from 100 to 300 tons, or even more, per acre in a week, or 5,000 to 15,000 tons per acre in a year. Therefore he justly concludes, "to attempt to burn smoke in private houses of manufacturing towns before the greater evil is cured is a great waste of time; besides, it may be said we know how to burn smoke in factories, we have not sufficiently learned it in private houses" (*Eighteenth Alkali Report*, p. 18). Still, education of the general public will both bring the force of public opinion to bear upon the manufacturer and enable each individual to learn how to minimise his little share in the general nuisance. Only this individual effort extended throughout society will practically influence domestic smoke-production. Legislation cannot be brought to bear upon it. For both these educative purposes no better means could be devised than the exhibitions held in London and at Manchester, and the report derived from the experience and scientific testings of these exhibitions, which furnishes the text for this general review of the smoke question. This report is wisely drafted upon the principle of giving authentic information as to the nature and scientifically determined results of apparatus and methods, without any attempt at interpretation of the facts, still less at advocacy of particular modes of smoke prevention. We do not attempt to do that which the skilled authors of this report have wisely left undone. But the intelligent reader will not fail to discover and note the fact, that there is great discrepancy between the heating efficiency of various types of coal-burning grates, stoves, gas apparatus, and boiler furnaces. For example, in domestic grates, while none utilised more than 60 per cent of the total heat, some only utilised 22 per cent; which means that the public will find in the market grates which require nearly three tons of coal to do the work which other grates will do with one. In gas-heating stoves the range of utilised heat is from 31 to 93 per cent; in boiler furnaces from 30 to 76 per cent. Those who are interested in heating rooms and buildings by hot air, hot water, and steam circulation; the factory owner who desires to learn the practical value of various forms of mechanical stokers, of fire-bridges, fire-bars, furnace doors, &c., &c.; the manufacturer who employs kilns and ovens—all will find in this report information suited to their needs, not such as patentees, each vaunting his own nostrum, supply, but in the shape of exact measurement and estimation by unbiassed scientific experimenters.

It may be said, therefore, that in so far as education is required for the suppression of smoke, that is in the fair way for general diffusion. The next step is to overcome the inertia of

manufacturers by legislation, followed out by strict administration of the law over the length and breadth of the country. From the last Report of the Council of the National Smoke Abatement Association, we learn how weak has been the administration of the weak law as it stands, even in the metropolis, to which we provincials have been in the habit of looking as an example of what a firm executive can effect. They find that over a period of five years "most of the fines inflicted for 'first offences' were below the legal minimum of 40s., and actually amounted, on an average, to only 7s. 11d.; while in subsequent convictions the fines were below the legal minimum of 80s., and averaged actually only 10s. 1d." They also find the most extreme variations in the practice of different courts. In short "the present administration does not comply with the letter, far less the spirit of the legislation." Alongside of this fact they place this other, "that a large number of works are actually carried on in London and elsewhere without causing a nuisance, and that smoke can be to a great extent, if not entirely, prevented." It is unnecessary for a writer in a Glasgow Journal to say that our experience here is the same in kind but immensely aggravated in degree. While human nature is the same, this will continue to be the experience of every manufacturing town where the administrators are also the violators of the law. In such circumstances, local officials are powerless. The community lives and is maintained by smoke, and the town which has the blackest atmosphere is, and can under no other conditions be, the most prosperous. Such is the formulated opinion of the local executive. We are convinced that until the administration of the Smoke Acts is placed, like that of the Alkali Acts, under central imperial control, with a chief Government inspector and local district inspectors acting under him, and until, so prompted and directed, offenders are brought before the Sheriff, not before popularly elected and personally incriminated or interested local magistrates, the inhabitants of our manufacturing towns must continue, not only to live by smoke, but to die by it, as they now do. Had local officials been left to struggle against the enormous local influence of alkali manufacturers in local subordinate courts, the Alkali Acts would, like the Smoke Acts, have been a dead letter—violated both in letter and spirit. The trade would also have been justly irritated by local inequality of treatment; for the only injustice possible in the repression of trade nuisances is that which arises from handicapping persons competing with each other, by restriction and compulsory expense in production in one district, as contrasted with freedom to follow the

cheap and nasty method in another. Our frequent reference to Dr. Angus Smith in the course of this Review must convince every reader that the public would find in him, or in a similar Government official, an efficient, independent administrator, and the manufacturer a judicious and reasonable critic and adviser. In this direction lies our only hope of being delivered from one of the most obvious and easily removable of the great causes of disease and death in our large cities, and especially in Glasgow.

Report of Cases treated in Ward XIX of the Royal Infirmary.

Reported by SKENE KEITH, M.B., C.M. Oliver & Boyd, Edinburgh, 1883. (This report contains an account of every case of operation performed in Ward XIX since it was opened in January, 1880.* It is now respectfully submitted to the Medical Managers of the Royal Infirmary, by THOMAS KEITH, M.D., Extra Surgeon for the treatment of Ovarian Disease).

THIS report forms certainly one of the most valuable contributions to abdominal surgery that has hitherto appeared. At this time of day few will be found to grudge to Keith the honour of being "facile princeps" in this branch. He commenced work at a time when much less grave operations than are here detailed were looked on by the great bulk of the profession as "attempts at slaughter."

It is undoubtedly a long stretch from M'Dowell of Kentucky (1809), to Keith of Edinburgh (1883), from "the fearful and formidable operation of gastrotomy with extraction of diseased ovaria" (*London Med. Rev.*, Oct., 1826), to Mrs. W.—fibroid, case viii—with "the bladder separated from the tumour by scissors; the uterus, Fallopian tubes, and ovaries cut away, the omentum mostly removed, the colon left hanging loose, the peritoneum largely stripped off the abdominal parietes and removed, the bowels in many places in contact with the denuded abdominal muscles, and nothing but pure blood passing through the drainage tube for some days."

Nothing, in fact, needs to be said about operations for ovarian tumours: that question is settled for ever, its difficulties and dangers being now pretty well understood, and the one that requires expiscation and settlement is that for fibroid tumour of the uterus.

Wonderful as are the ovarian operations that have fallen to

* The results brought down to the end of May, 1883 (R.)

the lot of Keith to do (in fact those rejected by other surgeons, and desperate cases sent to him as to a "salvator") we cannot but regard them lightly as compared with his extirpations of the uterus and its appendages for fibrous tumour, "the only cases that have ever been sent out completely cured from this or any general hospital," of which more anon.

The whole story of his operations bears the self-evident marks of honesty, simplicity, and valour; and, through all, the clear evidences of a kind and loving heart. No one cares more for his patient than Keith; his quick mind, his tremulous anxiety to be on the spot to present succour, if succour can be given, cannot be sufficiently admired; his introspections and his retrospections; his quiet, loving words; his debates with himself as to whether this, that, or the other thing would have been better to have been done or to have been left undone, while all the time "*ohne Hast, ohne Rast*," he works steadily through his operations: are all things to be marvelled at, to be honoured, to be humbly emulated by those who would follow his steps. Laying aside, in the meantime at least, his operations for ovariectomy, we find ample field in considering his cases of fibroid. Of these there are 10 in all, not one fatal, but all ending in the most complete cure. His mode of operating is different from that of Schröder, Hegar, Tait, Thornton, Wells, and others. To describe it shortly: the abdomen is incised in the usual manner, and the peritoneum picked up by a pair of broad-pointed forceps and slit up with a pair of scissors. The tumour is, if possible, then turned out *en masse* and the attachments rapidly cleared off by the scissors, strong locking forceps meanwhile checking hæmorrhage. A clamp or ligature is then screwed down as low as possible, and the whole thing cut away or cauterised off whatever it may contain, uterus, Fallopian tubes, broad ligament, or ovaries.*

This differs very considerably from the method of enucleation practised by Tait of Birmingham, and Schröder of Berlin, whose methods also differ very considerably from each other. It is a question how far enucleation serves any good purpose, when the whole intra-abdominal generative organs have to be removed. If the ovaries, as in all Keith's cases, are diseased, it is better at once to screw down your clamp, and cauterise or cut away the whole mass. If, however, there is any great difficulty in securing a sufficiently safe stump, the better plan may be to enucleate, and then, as a rule, you will have much

* The minutæ and further details would require separate notice, of which, perhaps, by and bye.

longer flaps to work with. The quicker an operation is done, and the less blood lost, the greater chance is there of a recovery. Too much time is frequently wasted wondering what to do, when there should be no wondering about it. As a rule, it is best to go straight ahead, having sufficient hæmostatics at command. No man's work could more forcibly impress this than Keith's as here narrated. Removal of the ovaries alone for fibroid, as we see here, is not always practicable; in fact, in these cases, was never practicable, and the conclusion is inevitable, that when a fibroid has gone beyond a certain size, removal of the uterine appendages is not practicable, and removal of the whole tumour is the only resource. Thornton has removed the appendages with benefit in seven cases of small fibroid; but Tait gives a mortality of 5·5 per cent for the same kind of cases. In fact, the mortality does not seem to be increased by what may be called the major operation of removing the whole tumour with the ovaries, which seem invariably to be diseased, and therefore the one operation is quite as justifiable as the other. The choice must evidently lie with the surgeon as to the matter of expediency.

When an operation is necessary, then it is justifiable. The causes that lead to necessity are pain, invalidism, and threatening or approaching death. When the wish or the will of the patient is associated with all, or any of these conditions, an operation is justifiable. Patients themselves do not know how to judge; they know if they are suffering, but if they are only invalided, or are likely to die, and are not miserable, nor desirous of running the risk of an operation, no surgeon is justified in insisting on one.

All of Keith's cases, on the whole of these grounds were justifiable, and would still have been justifiable had the results been far otherwise than they are. The patients were poor, miserable, suffering creatures, and there was nothing for them left but to die at the best.

Ward XIX consists of two rooms, each containing two beds; but it was found more convenient to put three beds into one room, and reserve the other for the patient who was to be the subject of operation. In this improvised operating room, the patient, after operation, was kept for a short time till it was seen how things were likely to go; and then she might be removed into the general room; and the operating room was again free; as a rule, thus having never more than one new case on the surgeon's mind at the same time; an admirable thing both for patient and surgeon, and worthy to be imitated everywhere. The surgeon thus is able to devote more time to

one case, and the patient is benefited by this additional care; not to speak of the anxiety of one such case being plenty for any man at a time. "The ward is noisy,"—"the quietest place in the house is reserved for the Lock Hospital"! *Mirabile dictu*. There is something then for the directors to amend in lack of providing a separate Hospital for women.

These fibroid cases are the only cases that have been sent out cured "from this or any general hospital." We have no reason to doubt that this is absolutely correct; and we do not wonder at it. A general hospital is not a place at all for ovariectomies or fibroids. Everything has to be said against such operations in such institutions; the collection of hundreds of cases of divers kinds under the same roof, the atmosphere, the crowds of students, the common operating theatre, the hurry and full hands of the surgeon, the big wards—in one word the want of home, of a real hospital home, must militate for ever against the interests of any patient operated on there. Birmingham General Hospital has the credit of leading the van in this respect; it has determined that no ovarian tumour or uterine fibroid shall be operated on in that institution. They have, as all cities ought to have now, a small hospital for women, between two and three miles out of the town. Quite as much indeed as ophthalmic surgery, which has long since proved its right to a separate institution, abdominal surgery is a field by itself; and, if one thing is clearer than another, it is that no operation which opens the abdominal cavity ought to be undertaken in any general hospital.

No doubt Keith has so far managed his cases that, as nearly as possible, he has a small separate hospital; but surgeons are not all Keiths; and with him even the writer is strongly of opinion there will be great risk of trouble, there being little need to mention other general hospitals in this matter, till there is a pure and simple hospital for women—a true cottage hospital with possibility of perfect isolation for each case.

Again, while the number of beds at the disposal of Keith is too small, it serves to show out all the more strikingly how true it is that, to make a man's work good and valuable, he must not have too much to do. In this, too, there is a very broad hint for all general and public hospitals; not even Hippocrates could undertake the daily charge of 90 or 100 patients, and no work can be well done that requires either hurry or a deputy. So has not Keith done his work, and so does it stand out beautiful and finished and permanent.

REPORTS OF HOSPITAL AND PRIVATE
PRACTICE.

WESTERN INFIRMARY.

REPORTS UNDER THE SUPERVISION OF J. LINDSAY STEVEN, M.B.

FROM PROFESSOR GEORGE BUCHANAN'S WARDS.

CASE OF LITHOTOMY—PREVIOUS REMOVAL OF A LARGE CALCULUS BY LITHOTRITY—RECOVERY.—J. L., æt. 27, ship's steward, was admitted to the Western Infirmary on the 13th Oct., 1883, suffering from symptoms of stone in the bladder. About $4\frac{1}{2}$ years ago he first began to be troubled with pain at the point of the penis, and two years later, as the symptoms had become more aggravated, he was admitted to the Royal Infirmary, where he was sounded for stone with negative results. After three weeks' treatment by morphia suppositories, hot hip baths, and internal medicines, he was discharged feeling well. Eight months after his residence in the Royal, the pain at the point of the penis returned with increased severity, and for nine months he was treated medicinally on board ship by the surgeon. Up till this time he had not noticed anything remarkable about his urine or micturition, but now he began to observe that the stream suddenly stopped at times, that he had to pass water oftener than usual, and that his urine was muddy and occasionally bloody. Incontinence of urine also set in; and on one occasion he had an attack of rigors and vomiting. In this condition he was admitted to the Liverpool Royal Infirmary, under the care of Dr. Harrison, in May, 1882, when a large stone was removed by lithotritry. The stone, principally phosphatic, with a small admixture of urates, measured three inches in one diameter, and weighed two ounces and two drachms. Dr. Harrison, writing to Dr. Buchanan, states that "the patient made a good recovery, and left the Infirmary quite free from any stone in the bladder." By the advice of Dr. Harrison the patient regularly washed out the bladder with a solution of Condy's fluid, and he remained quite free from all symptoms till about 2 months before admission to the Western Infirmary. At this time the pain in the point of the penis returned, and one month before admission the stream began again to be suddenly arrested. He also passed several small pieces of phosphatic grit, and on admission suffered great pain in micturition, the pain being specially referred to the anal region. On examining with the

sound Dr. Buchanan at once detected a stone, but operation was deferred on account of his exceedingly weak, irritable, and feverish condition, and he was treated by sedatives and milk diet. The urine threw down an abundant stringy deposit of pus and granular phosphates.

10th Nov., 1883.—As the general health and condition have greatly improved under the sedative and nourishing treatment, it was determined to perform the operation of lithotomy. The operation was performed with the aid of Buchanan's Rectangular Staff, and a large phosphatic calculus removed. It weighs after drying half an ounce and two pennyweights troy, and measures in its long diameter $1\frac{3}{8}$ inch, and in its short fully an inch. On section the calculus is seen to be entirely phosphatic.

22nd Nov.—Since the operation the progress of the patient towards recovery has been uninterrupted. The wound is healing well, and the urine is beginning to come a little by the urethra.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY.

SESSION 1883-4. MEETING I.—*5th October, 1883.*

DR. GAIRDNER, *President, in the Chair.*

The following is the list of Office-bearers for the session:—

President.—DR. W. T. GAIRDNER.

Vice-Presidents.—DR. ALEX. ROBERTSON, AND DR. HUGH THOMSON.

Council.—DR. ROBERT W. FORREST, DR. LAPRAIK, DR. D. MACLEAN, DR. J. C. WOODBURN, DR. WM. WHITELAW, *Kirkintilloch*; DR. W. A. WILSON, *Greenock*; DR. R. COWAN, DR. J. A. LOTHIAN.

Secretaries.—DR. W. L. REID, DR. J. W. ANDERSON.

Treasurer.—DR. HUGH THOMSON.

DR. ALEXANDER ROBERTSON read ON ALCOHOLIC CEREBRAL AND MENTAL DISORDERS:—

In this paper Dr. Robertson first referred to the varying effects of alcohol on different people in a state of health, the real disposition being, in most cases, more clearly brought out when they were distinctly under the influence of this agent.

He mentioned that in insanity he had seen delusions more decidedly expressed when the person was partially drunk, and considered that a practical hint might be derived from this fact in the elucidation of concealed delusions in doubtful cases of mental disease.

Dr. Robertson then proceeded to the main subject of his paper. He stated that, according to his observation, alcohol, when taken in such excess as to give rise to definite disorder of the nervous system, in some individuals, judging by the symptoms, acted most prejudicially on the great motor centres, the other centres being comparatively little affected. In another group its special force appeared to be spent on the centres of special sense, in which case the toxic action might be confined to one side, giving rise to unilateral hallucinations; or, these centres might be involved along with those associated with the highest mental functions; in either or both of these cases, the motor centres might almost, if not altogether, escape. The vaso-motor centres, and those which presided over the secretion of sweat, were much more affected in some patients than in others; and he had occasionally observed the excessive sweating to be somewhat spasmodic in its character. In treating of the disturbance of the motor centres he referred to the tremors and jerks to which alcoholics are subject in relation to the epileptic seizures which occur in some cases, the latter symptom being of much more evil omen than the former. These various groups were copiously illustrated by notes of cases that had occurred in his own experience.

He then referred to the significance of these special physiological and pathological effects in different individuals, in their bearing on the original or acquired constitution, clinical and anatomical, of cerebral tissues.

Dr. Robertson said that the subject had so grown upon him in the writing of the paper that he had been obliged to omit the short account he had intended to submit of the forms, at least six in number, of mental disorder, induced by alcohol. With a view, however, to give a practical turn to the after discussion, he would refer briefly to the treatment of delirium tremens. He had commenced practice at the close of what might be called the opium and whisky treatment, and he narrated, very much as a medical curiosity, a striking case in which the former was given in enormous doses along with considerable quantities of the latter. The patient had recovered, notwithstanding the treatment pursued. He then spoke of the curability of the disease by simple feeding and nursing, but considered that in many cases recovery was

hastened either by chloral hydrate alone or combined with potassium bromide. In certain cases he still thought favourably of small doses of opium. He also mentioned his experience of tartar emetic and of tincture of digitalis in large doses.

Dr. Murdoch Cameron had no faith in alcohol given as a test of character or of sanity. He knew some of the quietest men in Glasgow who, under the influence of drink, became as violent as maniacs. He gave some instances from his own experience of suicidal attempts and of hallucination under the action of alcohol. As to the treatment of delirium tremens, he had observed that the action of chloral in such cases was somewhat uncertain and perplexing; and he believed that this arose from the quality of the drug. Care should be taken that it was given pure, and before decomposition had begun.

Dr. R. Scott Orr said that in his experience, both as a hospital physician and in private practice, delirium tremens was an affection much less common than it used to be. In the treatment he had seen benefits from opium given, he need not say, in smaller doses than in the case adverted to by *Dr. Robertson*. Tartar emetic, given in doses of from 5 to 10 grains, he had seen effective in the disease. It acted as a contra-stimulant. He frequently used with good effect bromide of potassium.

Dr. J. Wallace Anderson stated that with regard to the hallucinations of alcoholics, he had noticed that in certain cases they were amenable to appeals to their reason and common sense; and he related one case in which, when a student, he had successfully made such an appeal. He was not aware whether in ordinary insanity such an appeal would be of any avail. Bromide of potassium, in his experience, had proved the most effective treatment in delirium tremens.

Dr. Scott said that in alcoholism the hereditary factor was most important. He had known a case in which grandfather, father, and son were able to stand the effects of alcohol in a proportion represented by their family descent—the grandfather best and the son worst. The treatment of delirium tremens was much more satisfactory than that of chronic alcoholism. In one case he knew a man, even after 20 years of total abstinence, admitting that he was in a state bordering on despair at the smell of the dramshop.

Dr. Hugh Thomson related a case of delirium tremens from chloroform taken by inhalation. The chloroform having been given her during a confinement, the patient had of her own accord afterwards betaken herself to the drug, with the result of bringing on delirium tremens. This affection was better

treated by contraries than by similars. Chloral could itself produce delirium tremens; and drugs of this class, though they produced sleep, did not appear to exert a directly curative effect.

Dr. Lapraik said that there could be no specific in the treatment of delirium tremens. Each case had to be considered individually. A patient of his had been drinking for many years at irregular intervals. In treating him, he began by giving him tartar emetic in small doses in his liquor. This soon created disgust, and he then gave him compound jalap powders, with a few doses of chloral and bromide of potassium, which completed the treatment.

Dr. Wm. L. Reid said that they as medical men must look to treatment with a prophylactic view. He had often found—especially in the cases of women—spirits prescribed during illness, to be continued with baneful effect after recovery.

Dr. Fergus said that the distinction between delirium tremens and dipsomania must be kept in view. In the former he scarcely ever gave any drugs, but kept the patient in a dark room, and kept up his strength by strong beef tea, &c. The treatment of the latter, in its graver forms, was rather mechanical and moral than medical. The importance of absolute abstinence should be insisted on. Relapses in these cases were due not to the natural return of the craving—for the craving did not usually return at all—but it was generally set up by a return to moderate drinking. When the craving was again brought back in this way, he treated it as a disease. Cayenne pepper administered in full doses was the best remedy he used. In epileptiform cases from alcohol he had found that there was a constant relation between the condition and the presence of albumen in the urine.

Dr. Carsewell, after some remarks on the tendency to exaggerate and accentuate individual characteristics shown in acute alcoholism, said that he doubted whether it was judicious to keep such patients in a darkened room. In the asylum he had found that the terror from being kept in the seclusion room was often extreme and hurtful. He asked *Dr. Robertson* what doses of chloral he used? *Dr. Balfour* of Edinburgh insisted on the necessity of a full dose at the outset, giving 40 grains and frequently a drachm dose. He had once given a drachm dose, with the result of stertorous breathing at the first, though the patient soon fell into quiet sleep. In several cases which he had seen there was an early stage prior to the acute stage. Would one be justified in such an early stage in giving say 50 or 60 grains of chloral, in the hope that it would prevent delirium tremens?

The President said that his experience led him to think, though delirium tremens might be less common than formerly, it was followed by consequences probably more calamitous than it used to be. Its comparative infrequency in the hospitals in Glasgow might be due to alterations in the hospital rules concerning admissions. As to treatment, he sympathised with those who looked with disfavour on the giving of chloral or other narcotic medicines.

Dr. Robertson, in reply, said that his suggestion of the trial of alcohol as a test in doubtful cases of monomania was only a practical application of the proverb *in vino veritas*. As to the statistics of delirium tremens, his experience in the Town's Hospital was, that in frequency it varied very much as the rate of wages, being more common in prosperous periods. The tartar emetic treatment, which was the old one of Rasori, he had tried in mania, but not to any extent in delirium tremens. As to Dr. Anderson's suggestion about an appeal to common sense in cases of insanity, that could be of no avail when the disease was fully established. It was doubtless true, as Dr. Scott had stated, that the children of drunkards were more susceptible to the influence of alcohol than the fathers, and that the children were frequently epileptics or imbeciles was a well known fact. Dipsomania, to which Dr. Fergus had adverted, was of two forms: there was the habitual form, and that in which the attacks of craving were paroxysmal. In respect to Dr. Carsewell's question as to the doses of chloral, he did not give large doses in that disease or any other. When the drug was first introduced he gave as an experiment two drachms; but the symptoms were so alarming that he never repeated the experiment. From 20 to 30 grains was the usual dose which he prescribed.

PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1883-84.

MEETING I.—9th October, 1883.

The Vice-President, PROF. GEORGE BUCHANAN, *in the Chair*.

DR. ROBERT KIRK showed a case of MYXŒDEMA. The patient was a female of 56, the mother of six children, and the commencement of her present illness coincided very closely

with the menopause at 44. The generalised solid œdema, broad, puffy face, flattened nose, thickened ears, resilient supra-clavicular fulness; the waxy complexion, with the pink patch on each cheek; the scantiness of the hair on the scalp, eyebrows, axillæ, and pubes, and other features of the affection described by Sir William Gull and Dr. Ord were all well marked. The skin was loose, wrinkled, and freely movable on the subjacent parts, a condition supervening, as pointed out by Dr. Ord, in a late stage of the disease. The slow, cautious, balancing gait; the deliberate, low-pitched, monotonous speech; the broad and thick tongue, with its lumbering, rolling movements, were witnessed by the meeting. The temperature ranged from 97·6° F. to 98·8°. She ate and drank little, and there was a very scanty secretion of urine, often falling to 25 ounces daily. There was a corresponding decrease in the urea, phosphates, and chlorides excreted, while the uric acid appeared as a mere trace. It contained no sugar, and not a trace of albumen. There was a history of the contraction of syphilis at the age of 26. She had suffered much from grief and anxiety for many years before the beginning of her complaint. A likeness of the patient at the age of 26 was shown, presenting a strong contrast to her present appearance.

DR. JOSEPH COATS showed (1) specimens from a case of INFLAMMATION OF THE BLADDER, WITH A LARGE CYST COMMUNICATING, DILATED URETERS AND CALCULOUS HYDRONEPHROSIS, WITH LARGE AND SMALL STONES. The wall of the bladder is greatly thickened by chronic inflammation, but in addition, there are numerous soft shaggy masses projecting from the internal surface and indicating a more acute inflammation. In the posterior wall of the bladder there is a large irregular aperture which readily admits one finger, and through this aperture the shaggy masses project, forming a somewhat pyramidal-shaped protuberance into a cavity next to be described. This cavity is larger than the bladder itself, and of very irregular outline. Its wall is formed of somewhat loose connective tissue, and it contained 2 or 3 pints of a turbid, purulent fluid. There was also pus in the abdominal cavity, especially near this cavity.

The left kidney and ureter from this case were also shown. The ureter is considerably dilated and thickened, and the pelvis of the kidney is thickened but not greatly dilated. The kidney, however, is converted into a congeries of cysts, most of which contained calculi, and seemed, to a large extent, to be

formed around these calculi, having similar shapes and sizes. All the cysts, whether containing calculi or not, communicate with the pelvis of the kidney. The large calculi, which in the preparation are retained *in situ* and exposed by partial removal of the cyst walls, present a pure white colour and considerable density, having none of the crumbling characters of the soft phosphatic calculus. Besides these large calculi the cysts contained hundreds of small calculi, some of which were shown. They are white like the larger, and generally present a remarkably regular disc shape, being rounded in outline and quite flat. Both forms of calculi present the reactions of the tribasic phosphate, being fusible in the blow pipe flame, soluble in nitric acid without effervescence, and precipitable from this solution by oxalate of ammonia.

The patient was a man aged 43. He was cut for stone when 12 years old and made a good recovery. Urinary symptoms reappeared 10 years before death and became aggravated for the next 6 years, when blood and gravel began to be passed. There were several subsequent exacerbations, pain and gravel being the prominent features.

Dr. Coats expressed his belief that this was originally a case of ordinary diverticulum of the bladder, which by inflammation had come to have the characters almost of an abscess. He referred to a case shown by him in the Society last session, in which a cyst of similar size and relation to this was associated with several smaller diverticula of the ordinary form.

(2). A specimen exhibiting TUBERCULAR DISEASE OF THE KIDNEYS, URETERS AND BLADDER, WITH HYDRONEPHROSIS. The *right kidney* has the characters of advanced tubercular disease. It is somewhat enlarged in external outline, and internally it is converted into a series of cavities with ragged internal surface and caseous wall. The *right ureter* is greatly thickened and lined with caseous material. The mucous membrane of the bladder presents almost continuous superficial ulceration. The terminal part of the *left ureter* is greatly thickened and hard, while the ureter alone is much dilated. It is, however, generally thin-walled, in this respect contrasting with the other ureter, there being only here and there a localized tubercular ulceration. The outline of the *left kidney* is considerably greater than that of the right, and, as shown in section, it presents a considerable hydronephrosis, the pelvis and calyces being dilated. The internal surface of the dilated pelvis and calyces is smooth in the upper two-thirds, as in an ordinary hydronephrosis, but in the lower third there are the usual

characters of tubercular disease, an irregular surface with shaggy projections, and a dense caseous lining of some thickness. There is a considerable amount of kidney tissue between the dilated calyces and the surface, and in this a number of small abscesses was discovered.

The course of events here has probably been tubercular disease of the right kidney, extending down the ureter to the bladder; tubercular disease of the bladder extending to the aperture of the left ureter; obstruction of this aperture by the tubercular thickening and caseous accumulation; dilatation of the ureter and the pelvis of kidney, going on to hydronephrosis; gradual and partial extension of the tubercular disease to the left ureter (against the current of urine) and finally to the kidney. It is to be remarked that the tubercular disease is limited to the lower third of the kidney, where the tubercular virus would more readily stagnate.

The patient was a boy aged 9, who in addition to these lesions had an abscess behind the bladder, which was opened.

(3.) A specimen of DISSECTING AND SACCULATED ANEURISMS. The preparation exhibited the aortic arch and aorta down to the lower extremity of the thoracic portion, divided longitudinally. It is seen that there are two distinct aneurisms—an ordinary sacculated one, which was probably the first formed, containing a considerable amount of clot; and a dissecting one. The sacculated aneurism is in the concavity of the arch of the aorta, making the concavity convex in external configuration. Internally, however, the clot fills up the aneurism and makes the vessel even narrower than normal. Opposite the most projecting portion of the clot there is a transverse slit in the superior wall of the aorta just beyond the origin of the left subclavian, and this is the aperture of the dissecting aneurism. This aneurism is continued down the entire length of the aorta to its bifurcation, although the abdominal part is not shown in the preparation. It was found that at the level of the bifurcation the aneurism again communicated with the aorta by a crescentic aperture $\frac{3}{8}$ ths of an inch in diameter. There was also a small aperture two inches above the bifurcation. The aneurism in the greater part of its course nearly surrounds the aorta, and this was well seen in a transverse section mounted separately, in which the proper calibre of the vessel appeared much collapsed, the aneurism surrounding it having a much larger area. Stratified clot is present in the aneurism throughout its course, being deposited on the outer wall.

The pneumogastric nerve passes directly on to the surface of

the true aneurism, and the recurrent was found emerging from its posterior aspect, but the parts between are so involved in the wall of the aneurism that the connection could not be traced. There was considerable enlargement of the left ventricle of the heart, the whole organ weighing twenty ounces.

The patient was a woman aged 37, who had been delivered of a child three days before. She was supposed to have heart disease, but died soon after admission before any examination could be made. Before death there was great dyspnoea, and the urine was highly albuminous.

(4.) AN ANEURISM OF THE AORTA PERFORATING THE PERICARDIUM. The aneurism, which is of large dimensions, is situated behind the transverse portion of the arch with which it communicates by a large rounded aperture $1\frac{1}{2}$ inch in diameter, and situated on the upper and posterior wall of the transverse arch. As the bulk of the aneurism is behind the arch it must have pressed on the trachea and œsophagus. The lower extremity of the aneurism passing down behind the arch has projected into the pericardium, and here the wall is exceedingly thin. A small ragged aperture through which a piece of whalebone has been passed forms a communication between the aneurism and the pericardium. The pericardium contained a bulky clot which surrounded the heart and was found to weigh ten ounces.

The patient was a man aged 39, who suffered from bronchitis, latterly with attacks of so-called asthma, which had the characters, however, rather of laryngeal spasm. Death occurred during a fit of coughing.

DR. NEWMAN showed a specimen OF SPONTANEOUS DISSECTING ANEURISM OF THE AORTA. The patient was admitted into Dr. Charteris' Wards on 7th May of this year, suffering from chronic bronchitis and emphysema, and slight hypertrophy of the heart, without any indication of valvular disease. After being in the ward for a few days the patient died suddenly with symptoms of asphyxia. At the *post-mortem* examination the following appearances presented themselves:—The left pleura was found to be occupied by a large blood clot, which, on examination, could be traced into the posterior mediastinum. By removing the blood clot from around the aorta an opening was seen communicating with the posterior mediastinum. This opening was of a size sufficient to admit a No. 12 catheter, and was situated on the left side of the aorta on a level with the fifth dorsal vertebra. On more careful examin-

ation a dissecting aneurism of the aorta was found, extending from about $1\frac{1}{2}$ inch above the valves to the opening in the diaphragm. This aneurism was formed by separation of the layers of the middle coat. The rupture in the internal coat was situated at the uppermost limit of the arch of the aorta, on its convex aspect. The opening was transverse to the axis of the aorta, and involved about half its circumference. The internal coat of the aorta was seen to be slightly atheromatous, and the seat of fatty degenerative changes. There was slight hypertrophy of the heart, particularly of the left ventricle and cystic disease of the kidney; but otherwise, there were no morbid changes worthy of remark.

Dr. Newman remarked in connection with this case—That it was an unusual circumstance to have a dissecting aneurism of the aorta rupturing into the pleural cavity. Dissecting aneurisms usually separate the layers of the middle coat from one another. Sometimes the internal coat from the middle coat; and in still rarer instances the external from the middle coat. Rupture most commonly happens through the internal coat into the vessel itself, so that the current of blood as it were passes along the vessel in two distinct channels, separated from one another by a septum formed by the internal coat, or by the internal and a portion of the middle coats, as the case may be. In Dr. Coats' case, the dissecting aneurism was preceded by formation of a true aneurism; whereas, in this case, the rupture of the internal coat was immediately followed by the formation of a dissecting aneurism. This is demonstrated by the character of the rupture in the internal and middle coats. The edges are sharply defined, and look almost as if they had been cut with the knife, and there is no bulging of the walls of the vessel at the point of rupture.

DR. NEWMAN also showed TWO CASES OF RUPTURE OF THE FIRST PART OF THE AORTA. The *first* case (patient's age 45), was admitted into Dr. Scott Orr's Wards in May, 1882, suffering from symptoms referable to feeble circulation and interference with respiration. The breathing was hurried and shallow. There was cedema of lower extremities, lividity of the face and lips, and the heart's action was very irregular and weak. Patient's symptoms improved whilst in the ward; but one afternoon, whilst sitting up in bed, she suddenly fell back and died. At the autopsy, on opening the pericardium, the cavity was found to contain a large blood clot. On removing this clot a communication was found to exist between the aorta and the pericardium, extending from a point a little above the

origin of the anterior coronary artery to within half an-inch of the origin of the posterior coronary artery. The edges of the ruptured walls were sharply defined, but were slightly valvular in form, the internal coat being ruptured nearer to the heart than the middle and external coats. The blood had separated the visceral pericardium from the root of the aorta, and had so formed a sac, of very irregular form, and large enough to contain about three ounces of fluid. There was a communication between this pouch and the cavity of the pericardium, large enough to admit the little finger. To the naked eye, and when examined under the microscope, the appearances presented by the aorta did not differ in any respect from the normal. There was no appearance of atheroma or other degenerative changes. The only fact of importance was that the aorta was very easily torn transversely. The sub-pericardial fat was increased in amount, particularly in the line of the coronary vessels. The heart was rounded in form, and the tissue soft and pale in colour, but there was no indication of fatty changes. The other valves of the heart were normal. The left lung was firmly adherent at the apex behind, both pleural cavities contained a quantity of serous fluid, and there was consolidation of the upper lobe of the left lung. There was cirrhosis of the liver, and the gall bladder contained a number of deeply pigmented gall stones. On microscopical examination the hepatic tissue was found to be atrophied and the hyperplasia of the connective tissue considerable, and associated with fatty metamorphosis in the cells situated around the hepatic vein. The kidneys were slightly enlarged, their surfaces smooth, and their capsules slightly adherent; the tissue unduly firm, and the line separating the medulla from the cortex obscured. The vessels of the medulla were distended and engorged with blood, and on microscopical examination the renal epithelium was found to be unusually granular, swollen, and the nuclei obscured. There were no evidences of interstitial changes.

In the *second* case (that of a man aged 60) the patient was brought to the hospital, but died before admission to the ward, so that no history could be obtained. The body was very muscular and well formed, and rigor mortis was well marked. The pericardium contained a large quantity of fluid blood and blood clot. The heart was fully contracted and almost empty. The walls of the left ventricle were thickened ($1\frac{1}{4}$ inch), and the septum ventriculorum measured fully $1\frac{1}{2}$ inch in thickness. The valves on the right side of the heart were normal, but both aortic and mitral valves were indura-

ted, and the segments of the aortic valves were slightly calcified. About half an inch above the segments the aorta was found to be torn round its whole extent, so that the ascending aorta was completely separated from the heart within the pericardium, into which cavity the blood had escaped.

The edges of the ruptured wall were seen to be slightly lacerated and stained with blood. The aortic walls were very soft and friable, and with slight force could be torn transversely. On microscopical examination the atheromatous changes were found to be limited to the valves; no morbid change was found in the coats of the aorta. The lungs were oedematous at their bases, and the abdominal organs were normal, with the exception of the left kidney, which was found to be the seat of cystic formations.

In connection with these three cases, Dr. Newman pointed out that rupture had taken place suddenly, and as far as could be ascertained, without undue exertion on the part of the patient, and in the absence of any serious pre-existing disease, as far as could be discovered by naked eye appearances, or microscopical examination. In the two latter cases the rupture had taken place immediately below the line at which the pericardium is reflected from the aorta. In the first case, the heart was unusually feeble in its action; and in the latter, there was very considerable hypertrophy of the left ventricle, which might possibly account for the extent of the rupture. If we imagine the heart suspended by the aorta, and the force of the ventricular contraction suddenly increased, then it is evident that the force must expend itself in two directions, downwards against the ventricular walls, and upwards against the arch of the aorta. Now, if we look for the area of least resistance, we should find it exactly where, in these two cases, the rupture has taken place—*i.e.*, between the aortic valves and the point of reflexion of the pericardium. The rupture in the first case took place at the point where the pressure is also considerable, and where, from its mechanical formation, the aorta is weaker than elsewhere—*viz.*, at the uppermost limit of the arch of the aorta, and on its convex aspect.

MEETING II.—13th November, 1883.

The Vice-President, PROF. GEORGE BUCHANAN, in the Chair.

DR. JOSEPH COATS showed the parts obtained from a case of EXTROVERSION OF THE BLADDER. In the specimen the rami

of the pubes were observed, but the symphysis was absent. One testicle was situated in the inguinal canal, the other nearer the scrotum. In the upper part of the specimen the bladder was seen as a prominent red tumour, towards the lower extremity of which was the penis, which consisted of little more than a glans. The kidneys, exhibiting dilatation of the pelves and ureters, were also shown. The patient had evidently died from surgical kidney. At the suggestion of the exhibitor, a committee, consisting of Dr. Joseph Coats, Dr. McEwen, and Mr. Clark, was appointed to investigate and report upon the case.

DR. BEATSON presented a patient from whom a PORTION OF THE RECTUM HAD BEEN REMOVED, showed the excised part, and gave the following account of the case :—

The patient is shown as an instance not so much of a difficult operation as of a formidable one, and about the propriety of performing which there is not yet complete unanimity of opinion in the profession.

The patient, A— W—, is in his 33rd year, and a cabinet-maker by trade. He came under my care at the beginning of last June, complaining of burning rectal pain, which lasted 6-8 hours after a movement, and of passing blood at stool, his linen, too, being stained with it. The history patient gave me was that he had suffered more or less from rectal symptoms for 7 or 8 years, but that they were never severe enough to necessitate his seeking medical advice until March of the present year, when they became much more urgent. At this time, too, another symptom showed itself, some urinary irritation being present as marked by frequency of micturition and dysuria, the urine being passed in small quantities.

When first seen patient was of a pale, sallow complexion, and looked ill. His digestive system seemed thoroughly out of sorts. Tongue was furred, appetite was small, there was acidity, flatulence, and occasional sickness, with great constipation, and even when laxative medicine was given, the movement was small. No headache and cough, but he has got thinner lately. Liver dulness 4 inches. No tenderness of that organ, and no nodules to be felt. There is some frequency of micturition, more marked in the day time. An examination of rectum showed no external growths, but a deep fissure of the anus at the posterior part, which was the chief seat of pain. On placing patient under chloroform next day to divide the fissure, I made a thorough examination of the bowel, and on passing my finger into the rectum I found distinct narrowing of the

bowel, and that a short distance above the orifice the whole calibre of the gut was occupied by a hard indurated portion with irregular surface, which bled on being touched. This dense thickening extended a short distance upwards, and then seemed to stop somewhat abruptly, the mucous membrane feeling healthy beyond. My finger could be got beyond the disease, both anteriorly and posteriorly. I feared I had a case of malignant disease to deal with, and contented myself with dividing the base of the fissure, which was evidently the source of the hot burning pain after movement. As there seemed to me a possibility of the thickening being of a specific nature, although no history to that effect could be obtained, I put him on doses of iodide of potassium, and attended to the general health. The division of the fissure gave relief to the burning rectal pain which had been so troublesome before; but there was no improvement in the condition of matters inside the rectum, or in the digestive disturbances, and at the end of June Prof. George Buchanan kindly saw the patient with me, and expressed an opinion as to the malignancy of the case, but that it was suitable for operation, as there seemed a fair prospect of removing the whole disease.

Having satisfied myself that the liver—an organ which we know rapidly becomes affected in rectal disease—was free from any secondary deposits, I explained to the patient the nature of his ailment and its seriousness, as well as that of the operation that would be necessary, but I felt justified in advising him to undertake the risks, as the disease seemed limited and entirely removable. To this he consented, and the operation was done on 3rd July.

Chloroform was used, and the method of operating consisted in making two deep crescentic incisions on each side of the anus which reached from the posterior to the anterior margin of that orifice, and which extended well into the fat of the ischio-rectal fossæ. By means of the finger the bowel was separated very freely from the surrounding tissues, save posteriorly, where with scissors I cut through the insertion of the levator ani. Having freed the bowel thus laterally and posteriorly, I had to deal with it in front, where I expected the most difficulty, as I knew it was intimately adherent to its anterior connections. To protect the urethra I passed a bougie into the bladder, which I had desired the patient not to empty, so that the distended bladder might pull up as much as possible the recto-vesical pouch. I found this the most delicate part of the operation, and cautious dissection was required. When I had freed it as far as necessary, I laid the bowel open by a slit in

its posterior and anterior walls, and removed the two lateral halves by the ecraseur separately. When I had done so I found that there was a portion of the anterior wall of the bowel that was not healthy left behind, and that I had not in fact got beyond the disease in front. This portion I then dissected off higher up and removed separately by the ecraseur. No great amount of blood was lost. After the operation, I introduced my finger into the bowel and felt that the whole circumference of the mucous membrane was healthy. There was, however, a small enlarged gland felt lying in front of the sacrum. This was not interfered with, as I hoped it might arise from irritation, and I was unwilling to lay open the mucous membrane of the bowel higher up.

No attempt was made to bring the edge of the bowel down and unite it to the skin, as only likely to give rise to tension and accumulation of discharge. The raw surface was washed with chloride of zinc (40 grs.— $\frac{3}{4}$), and strips of carbolised lint were stuffed in to check any oozing. These were removed on the following day.

The subsequent progress of the case was in every way satisfactory. No secondary fever followed, and there was entire absence of pain. The treatment consisted in attending to the patient's position, so as to have free drainage of the wound, which was carefully syringed several times a day with weak Condyl's fluid. The chloride of zinc caused some sloughing of the cellular tissue, which gave rise to some fætor, and this was corrected by a charcoal poultice. Small doses of bismuth and Dover's Powder were given thrice daily to control the bowels, and a milk diet with lime water.

On referring to my notes of the case, I find that the water had to be drawn off for two days, but that subsequently he passed it freely, and gradually the irritability of the urinary organs passed off, so that on 15th July there is the following note:—"Water is now held for 4-5 hours and passes easily, though there is slight pain during micturition in urethra about its point." The bowels gave no trouble after the operation. On only one occasion—July 8th—did there seem to be any fæces in the wound, and then only in small quantity. On 14th July, as there was no sign of the bowels moving, I ordered him one drachm of castor oil at 7 A.M. next morning; and the note on 15th July is—"Bowels acted after castor oil. Fæces came away suddenly without any pain, but he reckoned that there were three movements, with an interval between." On the following day he had a slight movement, and record says:—"Seems to have some control over movements. Knew when the fæces were

coming." On 18th July report says:—"Has not felt so well since April. Is sitting up daily in bed, and sleeps well; no escape of fæces, and no movement since 16th." Bismuth and Dover's Powders were given up on 14th. On 20th July oil was repeated, as no movement had taken place, and my note on 21st July is:—"Oil acted three or four times during day, and had more control than formerly. Sleeping well and feels better; allowed up to-day." During all this time the wound was granulating nicely, and filling up. The orifice of the bowel could be distinctly seen some distance from skin, and closed by a sort of transverse fold of mucous membrane. Things went on in this satisfactory condition, and he left the Home in Renfrew Street six weeks after the operation, in good health and spirits, being able to walk about the town with comfort, and having complete control over the bowels, which acted daily, stools requiring a little oil. The wound was not healed, but a bit of lint kept between the buttocks absorbed the discharge, and allowed him to go about without discomfort. The next news I had from him was dated 10th September, from Ireland, where he had gone for change of air, and where he had greatly improved.

15th October.—He called to see me, and I found him looking well. He has gained 1 stone 8 pounds in weight since the operation. His appetite is now good, and flatulence is absent. As regards the condition of the bowel, I found there was full control over the fæces; but there was constipation, and the wound showed a great tendency to contract, so that there is now a very small anal aperture, which seems to consist of dense scar tissue, and is somewhat unyielding. I could not pass my forefinger to examine the outlet of the bowel, but ordered him a rectal bougie for daily use, which I hope will counteract this troublesome complication. From what I have seen in this case there seems to be a canal of dense granulation tissue, which extends from the real orifice of the bowel to the outside aperture, and I expect he will require a constant use of the bougie. This arises from my having had to remove the whole circumference of the bowel.

I submitted the specimen to Dr. Coats for examination, who reckoned that about 3 inches of bowel had been removed, and that the case was one of colloid cancer of rectum. The following is his report:—

"The lower part of the rectum has been excised in two parts, the mucous membrane at the anus has been removed, and shortly above the anus a firm, somewhat thick infiltration of the wall is found, which has occupied the entire calibre of

the intestine. This is composed of a dense, resisting tissue, which has replaced the proper wall of the intestine. Microscopic examination of the dense tissue reveals a very marked stroma, generally filled with transparent material, but sometimes with distinct epithelial cells, and presenting the ordinary characters of colloid cancer."

Is there any permanent cure for rectal cancer? To this I am not prepared to give a reply, especially on the strength of one case and four months after operation. But besides the question of cure, we have to consider whether treatment can do anything to retard the disease and render life's last years bearable. We know that cases if left to themselves gradually but surely get worse, and that nothing remains but palliation of the symptoms, and, when these last become urgent, colotomy, at a time when the system is unable to stand it, and hence the fatality of that operation. A sufficient number of cases has now been done to let us have some idea as to the immediate risk to life, the subsequent amount of life to be gained, and the after condition of the patient. It is as a contribution to the settlement of these three points that I have brought forward this case, and the result has seemed to me encouraging. I confess I had grave doubts in my own mind at first as to the propriety of operating, as many an operation may be carried out anatomically and theoretically which is not always beneficial in its results, and leaves the patient in a much worse condition than before, and I feared this might follow in the present instance; for what I had already seen of excision of portions of rectum did not prepossess me in its favour. I have to thank Dr. Buchanan for his kind advice in this case and for his careful judgment, which has, I think, been justified by the result.

Professor Buchanan said that the Society was obliged to Dr. Beatson for pointing out the feasibility of an operation which, some years ago, would not have been held justifiable. Epithelioma of the rectum, if within easy reach of the finger, might with advantage be removed; and the contraction of the anus which had resulted would, he had no doubt, just as in the case of piles, gradually improve.

Dr. Fleming said that it had occurred to him that the resulting contraction in Dr. Beatson's case might be conveniently and perhaps efficiently treated by the use of an instrument made upon the plan of Barne's bags for dilating the os uteri.

Dr. Cameron had seen very tight contraction occurring after the operation for hæmorrhoids, but almost invariably in cases

where the skin had been involved as in the removal of external piles. He had seen it quite as tight as in Dr. Beatson's case, and, from his experience of it in the case of piles, he was sure that here also it would improve with time. One other accident happens in the case of piles, which, however, could not occur in Dr. Beatson's case—viz., prolapse of the rectum.

Dr. CAMERON showed a patient in whom the RIGHT CAROTID AND SUBCLAVIAN ARTERIES WERE TIED FOR ANEURISM OF THE INNOMINATE ARTERY, and the following is an account of the case, the operation, and the result:—

Mrs. W., a widow without family, æt. 57, consulted me in the beginning of last month in regard to a pulsating tumour just above the right sterno-clavicular articulation. She first became aware of its presence about four years ago, but had paid little attention to it until lately, when she was informed by her medical attendant of its serious character. He advised her to call upon me so that the question of whether or not surgical interference was advisable might be raised, and afterwards determined by us. The tumour, which was clearly aneurismal, extended for some little distance into the neck, and reached outwards in the form of a pointed and prominent prolongation of the main swelling to beyond the outer border of the sterno-mastoid muscle. This portion of it was very movable. If a finger was placed on each side in order to distinguish the distensile character of the pulsation, and a little pressure made, it slipped readily from between the fingers and disappeared under the border of the muscle, starting forward again immediately on the hands being removed. Pulsation of a marked but more diffused character could be distinctly seen and felt also in the episternal notch. On being closely questioned the patient stated that she occasionally coughed a little at night on first going to bed, and once or twice had experienced a trifling difficulty in swallowing. No other symptoms and no serious inconvenience have as yet been caused by the disease, but it seemed evident that it was making steady progress. Simultaneous firm compression over the right subclavian and carotid arteries produced a distinct effect in diminishing both the force of the pulsation and the prominence of the tumour. On March 22 she was seen and examined by Dr. Finlayson, who has kindly furnished me with the following short note of her case as observed by him on that occasion:—

“There was a very distinctly pulsating tumour involving

apparently the innominate artery. It could be felt as a movable tumour, sliding to some extent behind the sternomastoid on being handled. Pulsation, continuous with this tumour, extended into the sternal notch, and in that position had a heaving character. Careful examination in the upper part of the sternum, and in the contiguous part of the chest wall just below the pulsating tumour, failed to discover any heaving impulse; but an obscure shock, coincident with the second sound of the heart, could be felt. On auscultation, the most prominent fact was the greatly deepened quality of the second sound, but no murmur was audible in any part of the chest. A murmur was developed, of course, over the pulsating tumour on applying distinct pressure. On percussion there was a very pronounced area of dulness, extending from the right sterno-clavicular region towards the cardiac dulness, and measuring about 2 inches transversely. The determination of the cardiac dulness was difficult, owing to a very full mammary development, but there did not appear to be any marked cardiac hypertrophy. The radial pulses were as nearly as possible equal, and there was no difference in the size of the pupils. No pressure signs were recognisable, and the patient does not appear to suffer much inconvenience from the disease. The signs seemed to me to indicate clearly an aneurism of the arch of the aorta of considerable size, and specially involving the innominate artery."

On *24th March*, with the concurrence of those associated with me in the treatment of the case, I ligatured the right subclavian and carotid arteries with antiseptic catgut, which had been kindly sent to me by Mr. Lister. It had been prepared by immersion in a one per cent solution of chromic acid for twelve hours, and afterwards for twelve hours in the solution of sulphurous acid of the British Pharmacopœia. I placed both ligatures, by Mr. Lister's directions, in watery solution of carbolic acid (1 to 20) for about half-an-hour before using them. That used for tying the subclavian was rather thicker than that with which the carotid was tied. The situation of the tumour (it extended, as I have said, somewhat beyond the outer border of the sternomastoid) interfered a little with the dissection usually practised in finding the subclavian artery, since I could hardly cut so far inwards as to expose the scalenus anticus muscle. I found the vessel, however, and passed the ligature round it without any serious trouble. The carotid was tied immediately below the omohyoid muscle. Drainage-tubes were as usual placed in both wounds. The immediate effect of the operation on the tumour could hardly be well

estimated, as the patient continued under chloroform until some time after the neck was enveloped in the dressings, pale and faint, and with a feeble action of the heart.

The operation was performed at two o'clock, and at five I saw her again. She felt pretty well, but complained of sickness and of some pain in swallowing. The hand and arm, which had been wrapped in cotton wool, were very warm; but the right side of the face, and especially the right ear, felt distinctly cold to the touch. A layer of cotton wool was therefore placed over that part of the head. Her temperature was then 97.4° , but in three hours afterwards had risen to 98.4° .

On *25th March* she was comfortable and free from pain. Both head and arm were warm. She had short periods of sleep during the night, and had experienced no feeling of sickness since seven o'clock in the morning. Her temperature in the morning was 98.2° ; it rose in the evening to 99° .

On *26th March* it is noted that the patient had slept for five and a half hours during the previous night. She complained of no pain or sickness, and had drunk freely of milk. I changed the dressings for the first time. The wounds had furnished a considerable amount of the usual sanguineous fluid, and were evidently uniting very satisfactorily. Temperature in the morning 99.2° , in the evening 99.4° .

On *29th March* the dressings were again changed. The discharge, which was serous in character, was small in amount. The drainage-tube was removed from the upper wound, and that of the other wound was very considerably shortened. The temperature was normal, and the patient feeling quite well.

On *2d April* the wounds were next dressed. The remaining piece of drainage-tube and almost all the stitches were removed. The upper wound was all but sound and had furnished no discharge; from the lower there had exuded clear fluid sufficient to make a stain about the size of a florin on the dressing.

On *5th April* the wounds were dressed for the fourth and last time, the remaining stitches being removed. The upper wound was sound, and only two parts of the lower remained uncicatrised—viz., at its outer extremity, where the drainage-tube had lain, and at the junction of the horizontal and vertical incisions by which it was made, where the cutaneous margins had not been quite accurately coapted. When this last dressing was removed, on April 12, both wounds were complete cicatrices from end to end. On that day Dr. Finlayson again made an examination of the patient, and has furnished me with the following note of it:—

"12th April.—The incisions are now healed. The defined

tumour, described as existing behind the sterno-mastoid muscle, cannot be recognised; but there is marked pulsation in this situation, which extends towards the sternal notch in a very pronounced manner, and is associated with much heaving there. Indeed, the heaving pulsation at this point seems to me to be more marked than before the operation, although the whole pulsating area is, no doubt, less. The dulness on percussion in the upper part of the chest, the deepened second sound, and the sense of shock on application of the hand still continue very distinct; but there is no heaving impulse to be detected there and no murmur. The radial and temporal arteries do not pulsate on the right side."

At present the patient remains very well, and in much the same state as regards the aneurism as after the operation twenty months ago.

Dr. Finlayson thought that the condition of the case now was essentially the same as that described in his note which had been read to the Society by *Dr. Cameron*. His own feeling with regard to it was that here one had to deal with an aneurism originating in the aorta and involving the innominate artery. Aneurisms of the innominate alone, and not of the aorta are rare. One peculiarity in *Dr. Cameron's* patient is that she should be the subject of such a grave disease with so few and slight symptoms. He had seen one such case before in *Dr. Patterson's* wards, but had been unable to find records of it.

Dr. Buchanan asked *Dr. Finlayson* if he did not think that the part seen pulsating in the neck was solidified, while the main mass of the tumour was in the chest.

Dr. Finlayson replied that he did not think the portion in the neck was solidified; and

Dr. Cameron concurred.

Dr. D. C. McVail said that the case exhibited by *Dr. Cameron* was of great interest as showing the effect of such an operation on aneurism of the aorta and also of the innominate. He had a case in *Dr. Anderson's* wards about three weeks ago, of well marked innominate aneurism, the tumour being perhaps confined wholly to that artery, and he thought that the effect of such an operation as that described by *Dr. Cameron* would be to strengthen the upper surface of the aorta by converting the innominate into a kind of by-wash.

DR. CAMERON showed a case in which *SPANTON'S OPERATION* had been performed for the radical cure of inguinal hernia. The patient was a little boy, about 4 years of age, who was

admitted into the hospital for sick children with a very large congenital inguinal hernia of the right side—so large as to equally distend the whole of the scrotum. After reduction three fingers could be easily passed through the canal. No truss could be got to restrain it. Dr. Cameron operated in May last by Spanton's method, removing the screw in about a week. In spite of an attack of scarlet fever, coming on just after the screw was removed, the patient made an excellent recovery. There has been no re-descent of the hernia, the canal being blocked by a hard, condensed mass of tissue. A truss is worn, and Dr. Cameron has advised that its use be continued for some years.

Dr. Buchanan was very pleased to see a case of cure by Spanton's method, and did not wish to compare it with other methods. As Dr. Cameron had remarked, it was necessary to wear the truss for a long time, and to delay an opinion as to the ultimate result, especially in subcutaneous operations. This case seemed to promise very well, especially if the truss were perseveringly worn.

Dr. BUCHANAN showed an UNDESCENDED TESTICLE taken from the SAC OF A STRANGULATED CONGENITAL HERNIA.

The specimen was obtained from a man, aged 55, who knew that there was no testicle in one side of his scrotum, but concerning this there was no history until the time that the patient was put under chloroform with a view to operation. He had received a kick in the groin 26 years ago, after which a swelling appeared, for the relief of which he wore a truss. The swelling gradually became larger, but he was always able to reduce it until the 25th September last, when it became much larger, and could not be reduced. Vomiting, which was not strictly stercoraceous, supervened, and he was admitted to the Western Infirmary on the 26th September. Taxis was resorted to, but was unsuccessful. Next morning, under chloroform, Dr. Buchanan examined the patient, when it was discovered that the testicle was not in the scrotum but in the groin. The swelling was almost the size of the closed fist, was just in the situation of a femoral hernia when it tilts over Poupart's ligament, but had no connection with the thigh. The tumour was neither tense, tympanitic, nor painful: it did not gurgle, and Dr. B. was inclined to think that it contained fluid and not bowel. The patient was allowed to come out of the chloroform, and so satisfied was Dr. B. that it contained fluid that he tried to apply the light test for hydrocele. As there was no great urgency fomentations were applied, and

small quantities of beef tea administered: in the afternoon he was no worse. Next morning, although there were no very urgent symptoms of strangulation, it was determined to cut down on the tumour, which was believed to be the sac of a testicle in a curious place. On opening the sac, which proved to be the tunica vaginalis, from which 2 or 3 ounces of a brownish fluid escaped, the testicle was discovered lying in the groin at the mouth of a large external ring. Behind this and inside the external abdominal ring a knuckle of bowel was seen occupying the inguinal canal, the seat of strangulation being the internal abdominal ring. The stricture was divided and the bowel returned. The testicle was cut away, and Dr. B. was enabled to perform the radical cure of hernia by the method he now adopts. The patient is now well, and the canal completely obliterated.

Dr. Robertson remarked that a few days ago he had reduced by taxis a strangulated hernia, where the testicle was found occupying the inguinal canal.

DR. BUCHANAN also exhibited a TUMOUR OF THE TESTICLE, with SECONDARY TUMOURS EXTENDING INTO THE INGUINAL CANAL.

On the 6th of May last the patient observed his testicle getting enlarged, and it was at first treated by strapping, the swelling being regarded as due to chronic orchitis. The question as to syphilis could not be accurately determined. The tumour began to extend up through the external ring, and some time after admission a second little tumour made its appearance in the canal. The testicle was removed: the cord was drawn as far out as possible and ligatured, when the secondary tumour was enucleated. On section the mass presented a peculiar soft, pulpy, fawn coloured appearance, not unlike a soft sarcoma. According to the report of Dr. Coats, the tumour presented the characters of a syphilitic formation.

Dr. Coats described the characters of the structure as follows:—The parts removed by operation are testicle, tunica vaginalis, and a considerable piece of spermatic cord, all of these being greatly enlarged. The testicle measures $2\frac{3}{4}$ inches in long diameter, and presents on section the appearance as of normal tissue exaggerated, lobules and the appearance of tubes being visible. The epididymis is in proportion even more enlarged, and it presents at two places on section an opaque degeneration. The spermatic cord is also greatly thickened, and it presents a similar opaque appearance in one part.

On microscopic examination of all these portions the pre-

ponderating elements are plump round cells. In the testicle the outlines of the tubes are visible in the midst of the round cells, and widely separated by the latter in the form of opaque convolution from fatty degeneration of the epithelium. The tunica vaginalis is considerably thickened.

Dr. Coats expressed the opinion that this lesion was syphilitic, being virtually a gummatus inflammation of the parts concerned.

GLASGOW SOUTHERN MEDICAL SOCIETY.

15th November, 1883.

DR. PARK, *President, in the Chair.*

DR. JAMES MORTON read a paper on COXO-FEMORAL DISEASE, relating to the treatment at that stage when there is only displacement, and when neither pain nor suppuration is present. He narrated three cases where manipulation was first used to produce replacement, and then a special long iron splint—fitted to the back, the hip, and the leg—was worn for a considerable time; in one case for two years, with the result of maintaining position. The use of the splint did not, however, prevent the formation of abscess. The questions raised for discussion were, the value of manipulation and of the use of a splint that allowed of locomotion.

Dr. Pollok thought highly of the iron splint. In these kind of cases he employed local depletion.

Mr. Stuart Nairne found abscess forming under the use of all kinds of splints, and in these cases, which, in spite of local counter-irritation of some sort, and complete immobility, for a considerable time were plainly going to the bad (and such cases were usually of a strumous taint), he considered it was best to cut down on the joint at once, and scrape or excise as the case might demand. He had never seen a case where pain was totally absent.

Dr. Barras had seen cases where pain was entirely absent, and he very much approved of Dr. Morton's long iron splint.

Dr. Park thought parents would be very much disinclined to allow any cutting operation so early. He thought there was greater power in counter irritation. He had one very bad case which he ascribed to the intense counteraction caused by extensive bed sores.

Dr. Menzies approved of the long splints and of counter-extension by means of weights.

MR. J. STUART NAIRNE showed an UNUSUAL INTRA-OCULAR TUMOUR, covering the situation of the optic disc and limbus luteus. He had extirpated the eyeball for excruciating pain in that organ and in that side of the head. Fifteen months before the operation, glaucoma fulminans had been diagnosed, at which time sight was almost gone, and was totally lost within three days. The patient would not consent at that time to an iridectomy. On section of the eyeball the anterior chamber was found obliterated, and the lens pressing against the cornea. The tension was so great when the sclerotic was cut that the sanguineous watery fluid which it contained spurted out. The retina and choroid were stripped off the sclerotic, and found encasing the tumour. The tumour was a lamified mass in the shape of a papilloma, and occupied about one third of the space within the eyeball.

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